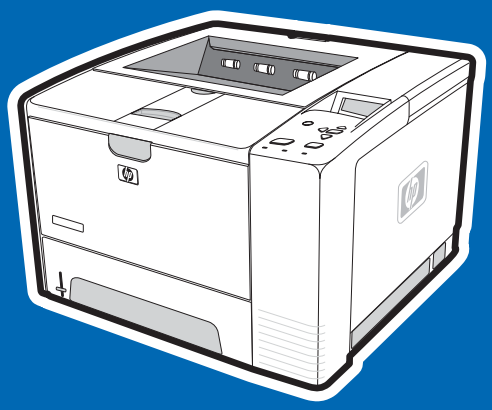

invent

service

hp LaserJet 2400 series

HP LaserJet 2400 Series printer

Service Manual

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Part number Q5956-90932

Edition 1, 9/2004

Safety information

WARNING!

Potential Shock Hazard

Always follow basic safety precautions when using this product to reduce risk of injury from fire or electric shock.

Read and understand all instructions in the user guide.

Observe all warnings and instructions marked on the product.

Use only a grounded electrical outlet when connecting the printer to a power source. If you do not know whether the outlet is grounded, check with a qualified electrician.

Do not touch the contacts on the end of any of the sockets on the printer. Replace damaged cords immediately.

Unplug this product from wall outlets before cleaning.

Do not install or use this product near water or when you are wet.

Install the product securely on a stable surface.

Install the product in a protected location where no one can step on or trip over the power cord and where the power cord will not be damaged.

If the product does not operate normally, see the online user guide.

Refer all servicing questions to qualified personnel.

Information regarding FCC Class B, Parts 15 and 68 requirements can be found in the user guide.

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Printer configurations

The HP LaserJet 2400 Series printer is available in several configurations. The letters that follow the printer name indicate the differences between the configurations. Each letter refers to a specific feature. Use the information in this section to determine which features your model has.

NOTE Not all models are available in all configurations.

Table 1-1. Feature designations for HP LaserJet 2400 Series printers

Letter	Description
no letter	This is the base model.
d	A duplexer is included for automatic two-sided printing.
n	An embedded HP Jetdirect print server is included for connecting to a 10/100Base-T network.
t	An additional input tray is included.

HP LaserJet 2400 Series printer base models

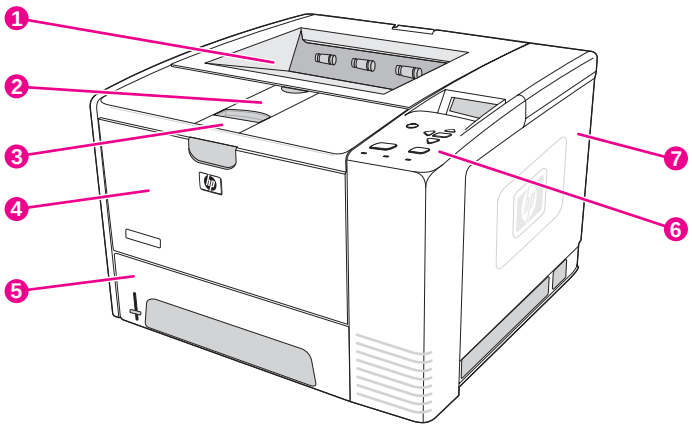


Figure 1-1. **HP LaserJet 2400 Series printer base model, front/right-side view**

1 Top output bin
2 Long-media extension
3 Cartridge-door latch
4 Tray 1
5 Tray 2
6 Control panel
7 Right-side cover

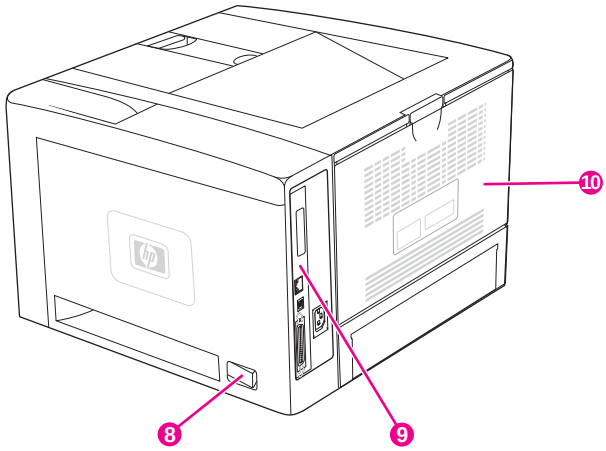


Figure 1-2. **HP LaserJet 2400 Series printer base model, right-side/rear view**

8 On/off switch
9 Interface ports
10 Rear output bin

Features

The following tables describe the features of HP LaserJet 2400 Series printers.

Table 1-2. Speed

HP LaserJet 2410 printer	HP LaserJet 2420 Series printer	HP LaserJet 2430 Series printer
Prints on letter-size paper at 25 pages per minute (ppm). Prints on A4-size paper at 24 ppm.	Prints on letter-size paper at 30 pages per minute (ppm). Prints on A4-size paper at 28 ppm.	Prints on letter-size paper at 35 pages per minute (ppm). Prints on A4-size paper at 33 ppm.

Table 1-3. Resolution

HP LaserJet 2410 printer	HP LaserJet 2420 Series printer	HP LaserJet 2430 Series printer
FastRes 1200 produces 1200-dpi print quality for fast, high-quality printing of business text and graphics. ProRes 1200 produces 1200-dpi printing for the best quality in line art and graphic images. HP LaserJet print cartridges produce crisp, sharp output.	FastRes 1200 produces 1200-dpi print quality for fast, high-quality printing of business text and graphics. ProRes 1200 produces 1200-dpi printing for the best quality in line art and graphic images. HP LaserJet print cartridges produce crisp, sharp output.	FastRes 1200 produces 1200-dpi print quality for fast, high-quality printing of business text and graphics. ProRes 1200 produces 1200-dpi printing for the best quality in line art and graphic images. HP LaserJet print cartridges produce crisp, sharp output.

Table 1-4. Paper handling

HP LaserJet 2410 printer	HP LaserJet 2420 Series printer	HP LaserJet 2430 Series printer
Includes a 100-sheet manual-feed input tray and a 250-sheet input tray. Compatible with an optional 500-sheet paper feeder. Manual duplexing is available.	Includes a 100-sheet manual-feed input tray and a 250-sheet input tray. Compatible with an optional 500-sheet paper feeder. The HP LaserJet 2420d and 2420dn printers include a duplex-printing accessory (duplexer) for automatic two-sided printing.	Includes a 100-sheet manual-feed input tray, a 250-sheet input tray, and a 500-sheet input tray. The HP LaserJet 2430dtn printers include a duplex-printing accessory (duplexer) for automatic two-sided printing.

Table 1-5. Memory and processor

HP LaserJet 2410 printer	HP LaserJet 2420 Series printer	HP LaserJet 2430 Series printer
Includes 32 MB of RAM. Expandable up to 288 MB maximum memory. 400-MHz processor speed.	The HP LaserJet 2420 printer includes 32 MB of RAM, expandable to 288 MB maximum memory. The HP LaserJet 2420d printer includes 48 MB RAM, expandable to 304 MB maximum memory. The HP LaserJet 2420n and 2420dn printers include 64 MB RAM, expandable to 320 MB maximum memory. 400-MHz processor speed.	The HP LaserJet 2430t printer includes 48 MB of RAM, expandable to 304 MB maximum memory. The HP LaserJet 2430tn and 2430dtn printers include 64 MB RAM, expandable to 320 MB maximum memory. 400-MHz processor speed.

Table 1-6. Interface connections and networking

HP LaserJet 2410 printer	HP LaserJet 2420 Series printer	HP LaserJet 2430 Series printer
Includes a bidirectional, extended capabilities (ECP) type-B (IEEE 1284-compliant) parallel connection. Includes a USB 2.0 connection (full and high speed). Includes one PCI-based enhanced input/output (EIO) expansion slot.	Includes a bidirectional, ECP type-B (IEEE 1284-compliant) parallel connection. Includes a USB 2.0 connection (full and high speed). Includes one PCI-based enhanced input/output (EIO) expansion slot. The HP LaserJet 2420n and 2420dn printers include an embedded HP Jetdirect print server for connecting to a 10/100Base-TX network.	Includes a bidirectional, ECP type-B (IEEE 1284-compliant) parallel connection. Includes a USB 2.0 connection (full and high speed). Includes one PCI-based enhanced input/output (EIO) expansion slot. The HP LaserJet 2430tn and 2430dtn printers include an embedded HP Jetdirect print server for connecting to a 10/100Base-TX network.

NOTE 48 MB RAM is required for network connectivity for the HP LaserJet 2410 and HP LaserJet 2420 printer base models.

Table 1-7. Language and fonts

HP LaserJet 2410 printer	HP LaserJet 2420 Series printer	HP LaserJet 2430 Series printer
HP PCL6, PCL 5e, and HP PostScript® (PS) 3 emulation 80 fonts for Microsoft® Windows® Additional fonts can be added by installing a CompactFlash font card.	HP PCL6, PCL 5e, and HP PostScript® (PS) 3 emulation 80 fonts for Microsoft® Windows® Additional fonts can be added by installing a CompactFlash font card.	HP PCL6, PCL 5e, and HP PostScript® (PS) 3 emulation 80 fonts for Microsoft® Windows® Additional fonts can be added by installing a CompactFlash font card.

Table 1-8. Print cartridge

HP LaserJet 2410 printer	HP LaserJet 2420 Series printer	HP LaserJet 2430 Series printer
The standard print cartridge prints up to 6,000 pages. "Extended life" print cartridges print up to 12,000 pages. The HP smart-printing-supplies program automatically alerts when toner is low.	The standard print cartridge prints up to 6,000 pages. "Extended life" print cartridges print up to 12,000 pages. The HP smart-printing-supplies program automatically alerts when toner is low.	The standard print cartridge prints up to 6,000 pages. "Extended life" print cartridges print up to 12,000 pages. The HP smart-printing-supplies-program automatically alerts when toner is low.

Table 1-9. Energy savings

HP LaserJet 2410 printer	HP LaserJet 2420 Series printer	HP LaserJet 2430 Series printer
The printer automatically conserves electricity by reducing power consumption when it is not printing. As an ENERGY STAR® partner, Hewlett-Packard Company has determined that this product meets ENERGY STAR® guidelines for energy efficiency.	The printer automatically conserves electricity by reducing power consumption when it is not printing. As an ENERGY STAR® partner, Hewlett-Packard Company has determined that this product meets ENERGY STAR® guidelines for energy efficiency.	The printer automatically conserves electricity by reducing power consumption when it is not printing. As an ENERGY STAR® partner, Hewlett-Packard Company has determined that this product meets ENERGY STAR® guidelines for energy efficiency.

Table 1-10. Economical printing

HP LaserJet 2410 printer	HP LaserJet 2420 Series printer	HP LaserJet 2430 Series printer
N-up printing (multiple pages on one sheet) saves paper. Duplex printing (manual duplexing only) saves paper. Printing in EconoMode saves toner.	N-up printing (multiple pages on one sheet) saves paper. Duplex printing (manual duplexing, or automatic duplexing for models that include a duplexer) saves paper. Printing in EconoMode saves toner.	N-up printing (multiple pages on one sheet) saves paper. Duplex printing (manual duplexing, or automatic duplexing for models that include a duplexer) saves paper. Printing in EconoMode saves toner.

Table 1-11. Accessibility

HP LaserJet 2410 printer	HP LaserJet 2420 Series printer	HP LaserJet 2430 Series printer
The online user guide is compatible with text screen-readers. The print cartridge can be inserted and removed by using one hand. All doors and covers can be opened by using one hand. The 250-sheet input tray is easy to open and close. All media-width guides can be adjusted by using one hand.	The online user guide is compatible with text screen-readers. The print cartridge can be inserted and removed by using one hand. All doors and covers can be opened by using one hand. The 250-sheet input tray is easy to open and close. All media-width guides can be adjusted by using one hand.	The online user guide is compatible with text screen-readers. The print cartridge can be inserted and removed by using one hand. All doors and covers can be opened by using one hand. The 250-sheet and 500-sheet input trays are easy to open and close. All media-width guides can be adjusted by using one hand.

Specifications

Physical specifications

Table 1-12. Product dimensions

Product	Height	Depth	Width	Weight[1]
HP LaserJet 2410, 2420, 2420d, 2420n, and 2420dn	260 mm (10.2 inches)	400 mm (15.7 inches)	425 mm (16.7 inches)	15.2 kg (33.5 lb)
HP LaserJet 2430t, 2430tn, and 2430dtn	400 mm (15.7 inches)	400 mm (15.7 inches)	425 mm (16.7 inches)	20.9 kg (46 lb)
optional 500-sheet feeder	140 mm (5.5 inches)	400 mm (15.7 inches)	425 mm (15.7 inches)	5.7 kg (12.5 lb)

[1]Without print cartridge

Table 1-13. Product dimensions, with all doors and trays fully opened

Printer model	Height	Depth	Width
HP LaserJet 2410, 2420, 2420d, 2420n, and 2420dn	260 mm (10.2 inches)	730 mm (28.7 inches)	675 mm (26.6 inches)
HP LaserJet 2430t, 2430tn, and 2430dtn	400 mm (15.7 inches)	730 mm (28.7 inches)	675 mm (26.6 inches)

Electrical specifications

WARNING! Power requirements are based on the country/region where the printer is sold. Do not convert operating voltages. This can damage the printer and void the product warranty.

Table 1-14. Power requirements

Specification	110-volt models	230-volt models
Power requirements	110 to 127 volts (± 10%) 50/60 Hz (± 2 Hz)	220 to 240 volts (± 10%) 50/60 Hz (± 2 Hz)
Rated short-term current	10.0 Amps	5.0 Amps

Table 1-15. Power consumption (average, in watts)[1]

Product model	Printing[2]	Ready	Sleep	Off
HP LaserJet 2410	625 W[3]	11 W	8.5 W	0.4 W
HP LaserJet 2420	625 W[3]	11 W	8.5 W	0.4 W
HP LaserJet 2420d	625 W[3]	11 W	8.5 W	0.4 W
HP LaserJet 2420n	625 W[3]	11 W	8.5 W	0.4 W
HP LaserJet 2420dn	625 W[3]	11 W	8.5 W	0.4 W
HP LaserJet 2430t	625 W[3]	11 W	8.5 W	0.4 W
HP LaserJet 2430tn	625 W[3]	11 W	8.5 W	0.4 W
HP LaserJet 2430dtn	625 W[3]	11 W	8.5 W	0.4 W

[1]Values subject to change. See www.hp.com/support/lj2410, www.hp.com/support/lj2420, or www.hp.com/support/lj2430 for current information.
[2]Power numbers are the highest values measured using all standard voltages.
[3]HP LaserJet 2410 speed is 25 ppm on letter size and 24 ppm on A4 size. HP LaserJet 2420 speed is 30 ppm on letter size and 28 ppm on A4 size. HP LaserJet 2430 speed is 35 ppm on letter size and 33 ppm on A4 size.

Default time from Ready mode to Sleep = 30 minutes. The recovery time from Sleep to start of printing = less than 8.5 seconds.

Heat dissipation in Ready mode = 37.5 BTU/hour (HP LaserJet 2410), 37.5 BTU/hour (HP LaserJet 2420), and 37.5 BTU/hour (HP LaserJet 2430).

Acoustic emissions

Table 1-16. Sound power and pressure level[1] (HP LaserJet 2400 series)

Sound power level	**Declared per ISO 9296**
Printing[2] (HP LaserJet 2410)	L_{WAd}= 6.6 Bels (A) [66 dB(A)]
Printing[2] (HP LaserJet 2420)	L_{WAd}= 6.7 Bels (A) [67 dB(A)]
Printing[2] (HP LaserJet 2430)	L_{WAd}= 6.8 Bels (A) [68 dB(A)]
Ready (HP LaserJet 2410)	Essentially Inaudible
Ready (HP LaserJet 2420)	Essentially Inaudible
Ready (HP LaserJet 2430)	Essentially Inaudible
Sound pressure level	**Declared per ISO 9296**
Printing[2] (HP LaserJet 2410)	L_{pAm}=52 dB (A)
Printing[2] (HP LaserJet 2420)	L_{pAm}=53 dB (A)
Printing[2] (HP LaserJet 2430)	L_{pAm}=53 dB (A)
Ready (HP LaserJet 2410)	Essentially Inaudible
Ready (HP LaserJet 2420)	Essentially Inaudible
Ready (HP LaserJet 2430)	Essentially Inaudible

[1]Values subject to change. See www.hp.com/support/lj2410, www.hp.com/support/lj2420, or www.hp.com/support/lj2430 for current information.
[2]HP LaserJet 2410 speed is 25 ppm on A4 size. HP LaserJet 2420 speed is 29 ppm on A4 size. HP LaserJet 2430 speed is 34 ppm on A4 size.
[3]Configuration tested (HP LaserJet 2410): Base printer, simplex printing with A4 paper size.
[4]Configuration tested (HP LaserJet 2420): Base printer, simplex printing with A4 paper size.
[5]Configuration tested (HP LaserJet 2430): Base printer, simplex printing with A4 paper size.

Operating environment

Environmental condition	**Printing**	**Storage/standby**
Temperature (printer and print cartridge)	15° to 32.5°C (59° to 89°F)	-20° to 40°C (-4° to 104°F)
Relative humidity	10% to 80%	10% to 90%

Media specifications

The printer accepts a variety of media, such as cut-sheet paper, including up to 100% recycled fiber content paper; envelopes; labels; transparencies; and custom-size paper. Properties such as weight, composition, grain, and moisture content are important factors that affect printer performance and output quality. Media that does not meet the guidelines that are outlined in this manual can cause the following problems:

- Poor print quality
- Increased jams
- Premature wear on the printer, requiring repair

NOTE Some media might meet all of media specifications and still not produce satisfactory results. Improper handling, unacceptable temperature and humidity levels, and other variables over which Hewlett-Packard has no control can affect print quality. Before purchasing large quantities of media, make sure that it meets the requirements that are specified in the user guide and in the*HP LaserJet Printer Family Print Media Guide*, which is available for download at http://www.hp.com/support/ljpaperguide. Always test paper before buying large quantities.

CAUTION Using media that does not meet HP specifications can cause problems for the printer, requiring repair. This repair is not covered by the HP warranty or service agreements.

Supported types and sizes of print media

Column Tray 1 heading	Dimensions[1]	Weight	Capacity[2]
Minimum size (custom)	76 x 127 mm (3 x 5 inches)	60 to 199 g/m^2 (16 to 53 lb)	100 sheets of 75 g/m^2 (20 lb) paper
Maximum size (custom)	216 x 356 mm (8.5 x 14 inches)		
Transparency	(Same as preceding minimum and maximum paper sizes.)	Thickness: 0.10 to 0.14 mm (0.0039 to 0.0055 inch)	75 typical
Labels[3]		Thickness: 0.10 to 0.14 mm (0.0039 to 0.005 inch)	50 typical
Envelopes		Up to 90 g/m^2 (16 to 24 lb)	Up to 10

[1]The printer supports a wide range of sizes. See the printer software for supported sizes. To print on custom-size paper, see the user guide.
[2]Capacity can vary depending on media weight and thickness, as well as on environmental conditions.
[3]Smoothness: 100 to 250 (Sheffield)

NOTE You might experience some jams when using any media that is less than 178 mm (7 inches) long. These jams might be caused by media that has been affected by environmental conditions. For optimum performance, make sure that you are storing and handling the media correctly (see Printing and paper storage environment).

Tray 2 (250-sheet tray) and tray 3 (500-sheet tray)	Dimensions[1]	Weight	Capacity[2]
Letter	216 x 279 mm (8.5 x 11 inches)	60 to 120 g/m^2 (16 to 32 lb)	250 sheets of 75 g/m^2 (20 lb) media
A4	210 x 297 mm (8.3 x 11.7 inches)		
Executive	191 x 267 mm (7.3 x 10.5 inches)		
Legal	216 x 356 mm (8.5 x 14 inches)		
B5 (JIS)	182 x 257 mm (7.2 x 10 inches)		
A5	148 x 210 mm (5.8 x 8.3 inches)		
8.5 x 13 inches	216 x 330 mm (8.5 x 13 inches)		

[1]The printer supports a wide range of sizes. See the printer software for supported sizes. To print on custom-size paper, see the user guide.
[2]Capacity can vary depending on media weight and thickness, as well as on environmental conditions.

Built-in duplexer[1]	**Dimensions[2]**	**Weight**
Letter	216 x 279 mm (8.5 x 11 inches)	60 to 105 g/m^2 (16 to 28 lb Bond)
A4	210 x 297 mm (8.3 x 11.7 inches)	
Legal	216 x 356 mm (8.5 x 14 inches)	
8.5 x 13 inches	216 x 330 mm (8.5 x 13 inches)	

[1]The built-in duplexer is included only with the HP LaserJet 2420d, 2420dn, and 2430dtn printers.
[2]The printer supports a wide range of sizes. See the printer software for supported sizes. To print on custom-size paper, see the user guide.

NOTE Prepunched media is not supported for automatic duplexing.

For more information about using print media, see the user guide.

Paper and print media

For complete media specifications for all HP LaserJet printers, see the *HP LaserJet Printer Family Print Media Guide* (available at http://www.hp.com/support/ljpaperguide).

Category	Specifications
Acid content	5.5 pH to 8.0 pH
Caliper	0.094 to 0.18 mm (3.0 to 7.0 mils)
Curl in ream	Flat within 5 mm (0.02 inch)
Cut edge conditions	Cut with sharp blades with no visible fray
Fusing compatibility	Must not scorch, melt, offset, or release hazardous emissions when heated to 200°C (392°F) for 0.1 second
Grain	Long grain
Moisture content	4% to 6% by weight
Smoothness	100 to 250 Sheffield

Printing and paper storage environment

Ideally, the printing and paper storage environment should be at or near room temperature, and not too dry or too humid. Remember paper is hygroscopic; it absorbs and loses moisture rapidly.

Heat works with humidity to damage paper. Heat causes the moisture in paper to evaporate, while cold causes it to condense on the sheets. Heating systems and air conditioners remove most of the humidity from a room. As paper is opened and used, it loses moisture, causing streaks and smudging. Humid weather or water coolers can cause the humidity to increase in a room. As paper is opened and used it absorbs any excess moisture, causing light print and dropouts. Also, as paper loses and gains moisture it can distort. This can cause jams.

As a result, paper storage and handling are as important as the paper-making process itself. Paper storage environmental conditions directly affect the feed operation.

Care should be taken not to purchase more paper than can be easily used in a short time (about 3 months). Paper stored for long periods might experience heat and moisture extremes, which can cause damage. Planning is important to prevent damage to a large supply of media.

Unopened paper in sealed reams can remain stable for several months before use. Opened packages of media have more potential for environmental damage, especially if they are not wrapped with a moisture-proof barrier.

The paper storage environment should be properly maintained to ensure optimum printer performance. The required condition is 20° to 24°C (68° to 75°F), with a relative humidity of 45% to 55%. The following guidelines should be helpful when evaluating the paper's storage environment:

- Paper should be stored at or near room temperature.
- The air should not be too dry or too humid (due to the hygroscopic properties of paper).
- The best way to store an opened ream of media is to rewrap it tightly in its moisture-proof wrapping. If the printer environment is subject to extremes, unwrap only the amount of media to be used during the day's operation to prevent unwanted moisture changes.

Envelopes

Envelope construction is critical. Envelope fold lines can vary considerably, not only between manufacturers, but also within a box from the same manufacturer. Successful printing on envelopes depends upon the quality of the envelopes. When selecting envelopes, consider the following components:

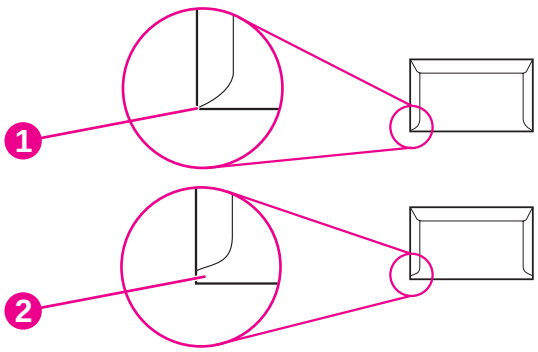
- **Weight:** The weight of the envelope paper should not exceed 105 g/m^2 (28 lb) or jamming might occur.
- **Construction:** Prior to printing, envelopes should lie flat with less than 6 mm (0.25 inch) curl, and should not contain air.
- **Condition:**Envelopes should not be wrinkled, nicked, or otherwise damaged.
- **Temperature:** You should use envelopes that are compatible with the heat and pressure of the printer.
- **Size:** You should use only envelopes within the following size ranges.
  - **Minimum**: 76 x 127 mm (3 x 5 inches)
  - **Maximum**: 216 x 356 mm (8.5 x 14 inches)

NOTE

Use only tray 1 to print envelopes. You might experience some jams when using any media with a length less than 178 mm (7 inches). This might be caused by paper that has been affected by environmental conditions. For optimum performance, make sure you are storing and handling the paper correctly (see Printing and paper storage environment). Choose envelopes in the printer driver (see Printer drivers).

Envelopes with double side seams

Double side-seam construction has vertical seams at both ends of the envelope rather than diagonal seams. This style might be more likely to wrinkle. Be sure the seam extends all the way to the corner of the envelope as illustrated below.



1 Acceptable envelope construction
2 Unacceptable envelope construction

Envelopes with adhesive strips or flaps

Envelopes with a peel-off adhesive strip or with more than one flap that folds over to seal must use adhesives compatible with the heat and pressure in the printer. The extra flaps and strips might cause wrinkling, creasing, or even jams and might even damage the fuser.

Envelope margins

The following gives typical address margins for a commercial #10 or DL envelope.

Type of address	Top margin	Left margin
Return address	15 mm (0.6 inch)	15 mm (0.6 inch)
Delivery address	51 mm (2 inches)	89 mm (3.5 inches)

NOTE For the best print quality, position margins no closer than 15 mm (0.6 inch) from the edges of the envelope. Avoid printing over the area where the envelope's seams meet.

Envelope storage

Proper storage of envelopes helps contribute to print quality. Envelopes should be stored flat. If air is trapped in an envelope, creating an air bubble, then the envelope might wrinkle during printing.

Labels

CAUTION To avoid damaging the printer, use only labels recommended for laser printers. To prevent serious jams, always use tray 1 to print labels and always use the rear output bin. Never print on the same sheet of labels more than once or print on a partial sheet of labels.

When selecting labels, consider the quality of each component:

- **Adhesives:** The adhesive material should be stable at 200°C (392°F), the printer's fusing temperature.
- **Arrangement:** Only use labels with no exposed backing between them. Labels can peel off sheets with spaces between the labels, causing serious jams.
- **Curl:** Prior to printing, labels must lie flat with no more than 13 mm (0.5 inch) of curl in any direction.
- **Condition:** Do not use labels with wrinkles, bubbles, or other indications of separation.

Transparencies

Transparencies used in the printer must be able to withstand 200°C (392°F), the printer's fusing temperature.

CAUTION To avoid damaging the printer, use only transparencies recommended for use in HP LaserJet printers, such as HP-brand transparencies. (For ordering information, see Ordering parts and supplies.)

Hewlett-Packard limited warranty statement

HP PRODUCT	DURATION OF LIMITED WARRANTY
HP LaserJet 2410, 2420, and 2430 series	1 year, Return to Authorized Service Center

HP warrants to you, the end-user customer, that HP hardware and accessories will be free from defects in materials and workmanship after the date of purchase, for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or equivalent in performance to new.

HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified above, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software which does not execute its programming instructions due to such defects.

HP does not warrant that the operation of HP products will be uninterrupted or error free. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, you will be entitled to a refund of the purchase price upon prompt return of the product.

HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.

Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts or supplies not supplied by HP, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (e) improper site preparation or maintenance.

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TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE YOUR SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. Some countries/regions, states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

Print Cartridge Limited Warranty Statement

This HP Print Cartridge is warranted to be free from defects in materials and workmanship.

This warranty does not apply to print cartridges that (a) have been refilled, refurbished, remanufactured or tampered with in any way, (b) experience problems resulting from misuse, improper storage, or operation outside of the published environmental specifications for the printer product or (c) exhibit wear from ordinary use.

To obtain warranty service, please return the product to place of purchase (with a written description of the problem and print samples) or contact HP customer support. At HP's option, HP will either replace products that prove to be defective or refund your purchase price.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTY IS EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE.

TO THE EXTENT ALLOWED BY LOCAL LAW, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE.

THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

HP LaserJet printing supplies

In many countries/regions, this product's printing supplies (for example, print cartridge and fuser) can be returned to HP through the HP Printing Supplies Environmental Program. An easy-to-use and free take back program is available in more than 30 countries/regions. Multilingual program information and instructions are included in every new HP LaserJet print cartridge and supplies package.

HP Printing Supplies Returns and Recycling Program Information

Since 1992, HP has offered HP LaserJet supplies return and recycling free of charge in 86% of the world market where HP LaserJet supplies are sold. Postage-paid and pre-addressed labels are included within the instruction guide in most HP LaserJet print cartridge boxes. Labels and bulk boxes are also available through the Web site at http://www.hp.com/recycle. More than 10 million HP LaserJet print cartridges were recycled globally in 2002 through the HP Planet Partners supplies recycling program. This record number represents 26 million pounds of print cartridge materials that were diverted from landfills. Worldwide, HP recycled an average of 80% of the print cartridge by weight, consisting primarily of plastic and metals. Recycled plastics and metals are used to make new products, such as HP products, plastic trays, and spools. The remaining materials are disposed of in an environmentally responsible manner.

- **U.S. returns** For a more environmentally responsible return of used cartridges and supplies, HP encourages the use of bulk returns. Simply bundle two or more cartridges together and use the single, prepaid, preaddressed UPS label that is supplied in the package. For more information in the U.S., call 1-800-340-2445 or visit the HP LaserJet Supplies Web site at http://www.hp.com/recycle.
- **Non-U.S. returns** Non-U.S. customers should call the local HP Sales and Service Office or visit the http://www.hp.com/recycle Web site for further information regarding availability of the HP Supplies Returns and Recycling Program.

Declaration of conformity

Declaration of Conformity
according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name:	Hewlett-Packard Company
Manufacturer's Address:	11311 Chinden Boulevard Boise, Idaho 83714-1021, USA

declares, that the product

Product Name:	HP LaserJet 2410/2420/2430 printer
Regulatory Model Number[3]:	BOISB-0406-00 Including optional accessory 500-Sheet Input Tray (Q5963A)
Product Options:	ALL

conforms to the following Product Specifications:

Safety:	IEC 60950:1999 / EN60950: 2000 IEC 60825-1:1993 +A1 +A2 / EN 60825-1:1994 +A11 +A2 (Class 1 Laser/LED Product) GB4943-2001
EMC:	CISPR 22:1997 / EN 55022:1998 Class B[1] EN 61000-3-2:1995 + A14 EN 61000-3-3:1995 + A1 EN 55024:1998 FCC Title 47 CFR, Part 15 Class B[2] / ICES-003, Issue 4 GB9254-1998, GB17625.1-1998

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC, and carries the CE-Marking accordingly.

1) The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.

*) The product includes LAN (Local Area Network) options. When the interface cable is attached to LAN connectors, the product meets the requirements of EN55022 Class A in which case the following applies: "Warning – This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures."

2) This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

3) For regulatory purposes, this product is assigned a Regulatory model number. This number should not be confused with the marketing name(s) (HP LaserJet 2410, 2420, 2420d, 2420n, 2420dn, 2430t, 2430tn, or 2430dtn) or the product number(s) (Q5955A, Q5956A, Q5957A, Q5958A, Q5959A, Q5960A, Q5961A, Q5962A).

Boise, Idaho , USA

April 2, 2004

For regulatory topics only:

Australia Contact:	Product Regulations Manager, Hewlett-Packard Australia Ltd., 31-41 Joseph Street Blackburn, Victoria 3130, Australia
European Contact:	Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department HQ-TRE / Standards Europe, Herrenberger Strasse 140 , D-71034, Böblingen (FAX: +49-7031-14-3143)
USA Contact:	Product Regulations Manager, Hewlett-Packard Company, PO Box 15, Mail Stop 160 Boise, ID 83707-0015, (Phone: 208-396-6000)

Country-/region-specific safety statements

Laser safety statement

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration has implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States. The printer is certified as a "Class 1" laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968.

Since radiation emitted inside the printer is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

WARNING! Using controls, making adjustments, or performing procedures other than those specified in this user guide may result in exposure to hazardous radiation.

Canadian DOC statement

Complies with Canadian EMC Class B requirements.

«Conforme àla classe B des normes canadiennes de compatibilité électromagnétiques (CEM).»

Japanese VCCI statement

この装置は，情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は，家庭環境で使用することを目的としていますが，この装置がラジオやテレビジョン受信機に近接して使用されると，受信障害を引き起こすことがあります。
取り扱い説明書に従って正しい取り扱いをして下さい。

Korean EMI statement

사용자 안내문 (B 급 기기)

이 기기는 비업무용으로 전자파장해검정을 받은 기기로서, 주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

Finnish laser statement

LASERTURVALLISUUS
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT
HP LaserJet 2410, 2420, and 2430 series -laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalissa käytössä kirjoittimen suojakotelointi estää lasersäteen pääsyn laitteen ulkopuolelle.
Laitteen turvallisuusluokka on määritetty standardin EN60825-1 (1994) mukaisesti.
VAROITUS!
Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.
VARNING!
Om apparaten används på annat sätt än i bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.
HUOLTO
HP LaserJet 2410, 2420, and 2430 series -kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkilö. Tällaiseksi huoltotoimenpiteeksi ei katsota väriainekasetin vaihtamista, paperiradan puhdistusta tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehtäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suorittaa ilman erikoistyökaluja.
VARO!
Mikäli kirjoittimen suojakotelo avataan, olet alttiina näkymättömälle lasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.
VARNING!
Om laserprinterns skyddshölje öppnas då apparaten är i funktion, utsättas användaren för osynlig laserstrålning. Betrakta ej strålen.
Tiedot laitteessa käytettävän laserdiodin säteilyominaisuuksista:
Aallonpituus 770-800 nm
Teho 5 mW
Luokan 3B laser

2 Installation

Chapter contents

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- Operating systems and printer components....25
- Printer drivers....26
- Software for Macintosh computers....27

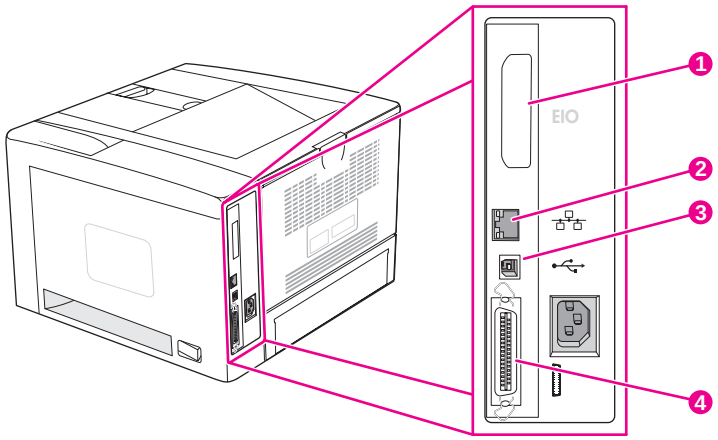
Operating environment

Place the printer on a sturdy, level surface in a well-ventilated area that meets the following environmental requirements:

- Temperature: 15° to 32.5°C (59° to 90.5°F)
- Humidity: 10% to 80% relative humidity (no condensation)
- Away from direct sunlight, open flames, and ammonia fumes
- Allow sufficient space around the printer for access and ventilation. (See Table 1-13. Product dimensions, with all doors and trays fully opened for the minimum space requirements.)

Interface ports

The printer has four interface ports: one EIO slot and three ports for connecting to a computer or a network.



1 EIO slot
2 Embedded HP Jetdirect print server (HP LaserJet 2420n, 2420dn, 2430tn, and 2430dtn models only)
3 USB 2.0 connection
4 IEEE 1284B-compliant parallel connection

Software

The printer comes with helpful software, including printer drivers and optional software. For easy printer setup and access to the full range of printer features, HP recommends that you install the software that is provided.

Check the installation notes and Readme files on the printer CD-ROM for additional software and languages. HP software is not available in all languages.

Operating systems and printer components

The printer CD-ROM contains the software components and drivers for users and network administrators. The printer drivers that are provided on the CD-ROM must be installed in order to take full advantage of printer features. The other programs are recommended, but are not required for operation. Check the installation notes and Readme files on the printer CD-ROM for more information.

The CD-ROM includes software that is designed for users and network administrators who are operating in the following environments:

- Microsoft Windows 98 and Windows Millennium Edition (Me)
- Microsoft Windows NT® 4.0 (parallel and network connections only)
- Microsoft Windows 2000, Windows XP, and Windows Server 2003
- Apple Mac OS version 9.1 or later, and OS X version 10.1 or later

The most recent printer drivers for all supported operating systems are available at www.hp.com/go/lj2410_software, www.hp.com/go/lj2420_software, or www.hp.com/go/lj2430_software. If you do not have access to the Internet, see the support flyer that came in the printer box for information about obtaining the most recent software.

The following table lists the available software for the printer.

Software	Windows 98/Me	Windows NT 4.0	Windows 2000/XP/ Server 2003	Mac OS	UNIX®/ Linux	OS/2
Windows Installer	x	x	x			
PCL 6	x	x	x			
PCL 5	x	x	x			
PostScript emulation	x	x	x			
HP Web Jetadmin*		x	x		x	
Macintosh Installer				x		
Macintosh PostScript Printer Description (PPD) files				x		
IBM drivers*						x
Model scripts*					x	

*Available only on the World Wide Web.

Printer drivers

Printer drivers provide access to the printer features and allow the computer to communicate with the printer (by using a printer language). Check the install notes, Readme, and late-breaking Readme files on the printer CD-ROM for additional software and languages.

The following printer drivers are included with the printer. The most recent drivers are available at www.hp.com/go/lj2410_software, www.hp.com/go/lj2420_software, or www.hp.com/go/lj2430_software. Depending on the configuration of Windows-based computers, the installation program for the printer software automatically checks the computer for Internet access to obtain the latest drivers.

Operating system[1]	PCL 6	PCL 5	PS	PPD[2]
Windows 98, Me	x	x	x	x
Windows NT 4.0	x	x	x	x
Windows 2000, XP, Server 2003	x	x	x	x
Macintosh OS			x	x

[1] Not all printer features are available from all drivers or operating systems. See the context-sensitive help in the printer driver for available features.
[2] PostScript (PS) Printer Description files (PPDs)

NOTE If your system did not automatically check the Internet for the latest drivers during software installation, download them from www.hp.com/go/lj2410_software, www.hp.com/go/lj2420_software, or www.hp.com/go/lj2430_software. After you are connected, click **Downloads and Drivers** to find the driver that you want to download.

You can obtain Model Scripts for UNIX and Linux by downloading them from the Internet or by requesting them from an HP-authorized service or support provider. For Linux support see http://www.hp.com/go/linux. For UNIX support see http://www.hp.com/go/jetdirectunix_software. For additional information see the support flyer that came in the printer box.

NOTE If the printer driver that you want is not on the printer CD-ROM or is not listed here, check the install notes, Readme, and late-breaking Readme files to see if the printer driver is supported. If it is not supported, contact the manufacturer or distributor of the program that you are using and request a driver for the printer.

Additional drivers

The following drivers are not included on the CD-ROM, but are available from the Internet.

- OS/2 PCL 5 or PCL 6 printer driver
- OS/2 PS printer driver
- UNIX model scripts
- Linux drivers
- HP OpenVMS drivers

NOTE The OS/2 drivers are available from IBM and are packaged with OS/2. They are not available for Simplified Chinese, Korean, Japanese, or Traditional Chinese.

Software for Macintosh computers

The HP installer provides PostScript Printer Description (PPD) files, Printer Dialog Extensions (PDEs), and the HP LaserJet Utility for use with Macintosh computers.

The embedded Web server can be used with Macintosh computers if the printer is connected to a network. See Using the embedded Web server for more information.

PPDs

Use PPDs in combination with the Apple PostScript drivers to gain access to the printer features and to allow the computer to communicate with the printer. An installation program for the PPDs, PDEs, and other software is provided on the CD-ROM. Use the appropriate PS driver that comes with the operating system.

HP LaserJet Utility

Use the HP LaserJet Utility to control features that are not available in the driver. The illustrated screens make selecting printer features easy. Use the HP LaserJet Utility to perform the following tasks:

- Name the printer, assign it to a zone on the network, and download files and fonts.
- Configure and set the printer for Internet protocol (IP) printing.

NOTE The HP LaserJet Utility is not currently supported for OS X, but the utility is supported for the Classic environment.

3 Operation

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Control panel

This section provides information about the control panel and its features.

The control panel is located on the top of the printer.

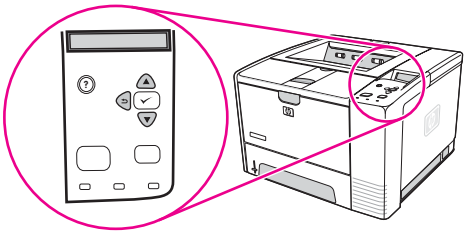


Figure 3-1. **Location of the control panel**

Control-panel layout

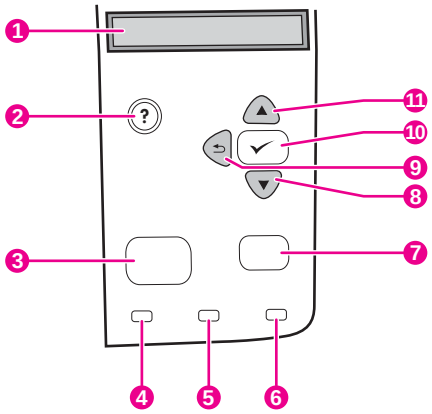


Figure 3-2. **Control-panel layout**

1 Graphical display
2 HELP button
3 MENU button
4 Ready light
5 Data light
6 Attention light
7 STOP button
8 DOWN button
9 BACK button
10 SELECT button
11 UP button

Control-panel buttons

Button	Function
? (HELP)	• Provides information about the message on the graphical display.
⮌ (BACK)	• Backs up one level in the menu tree or backs up one numeric entry. • Exits menus if held down for more than 1 second.
MENU	• Opens and closes the menus.
▲ (UP)	• Navigates to the previous item in the list, or increases the value of items that are numerical in nature.
✓ (SELECT)	• Clears an error condition when the condition is clearable. • Saves the selected value for an item. • Performs the action that is associated with the item that is highlighted on the graphical display.
▼ (DOWN)	• Navigates to the next item in the list, or decreases the value of items that are numerical in nature.
STOP	• Cancels the current print job in process and expels all of the active pages from the paper path. The time that it takes to cancel the job depends on the size of the print job. (Press the button only once.) Also clears continuable errors that are associated with the canceled job. **NOTE** The control panel lights cycle while the print job is cleared from both the printer and the computer, and then the printer returns to the ready state (Ready light on).

Control-panel lights

Light	State	Indication
Ready	On	The printer is online and ready to accept data to print.
	Off	The printer cannot accept data because it is offline (paused) or has experienced an error.
	Blinking	The printer is going offline. The printer stops processing the current print job and expels all of the active pages from the paper path.
Data	On	The printer has data to print, but is waiting to receive all of the data.
	Off	The printer has no data to print.
	Blinking	The printer is processing or printing the data.
Attention	On	The printer has experienced a problem. Note the message on the control-panel display, and then turn the printer off and on. See Understanding printer messages for help in resolving problems.
	Off	The printer is functioning without error.
	Blinking	Action is required. See the control-panel display.

Control-panel language

If **LANGUAGE** appears in English on the control panel, use the following procedure. Otherwise, turn the printer off, and then turn the printer on again. When **XXX MB** appears, press and hold ✓ (SELECT button). When all three control panel lights are lit, release ✓ (SELECT button) and use the following procedure to set the language.

To select the language

1. When **SELECT LANGUAGE** appears in English, press ✓ (SELECT button), and wait until **LANGUAGE** appears in English.
2. Press ▼ (DOWN button) until the preferred language appears.
3. Press ✓ (SELECT button) to save the preferred language.

Printing control-panel menus

To see the current settings for the menus and items that are available at the control panel, print a control-panel menu map. You might want to store the menu map near the printer for reference.

NOTE For a complete list of the items that are available in the control-panel menus, see the user guide.

To print a control-panel menu map

1. Press MENU to open the menus.
2. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **INFORMATION**, and then press ✓ (SELECT button).
3. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **PRINT MENU MAP**, and then press ✓ (SELECT button).

Selecting which tray is used for printing

You can select how the printer pulls media from the trays. The following sections provide information about configuring the printer to pull media from specific trays.

Understanding tray order

Customizing tray 1 operation

Printing by type and size of media (locking trays)

Feeding media from tray 1 manually

Understanding tray order

When the printer receives a print job, it selects the tray by trying to match the requested media type and size with what has been loaded in the trays. Using an "autoselect" process, it searches all available trays for the paper that satisfies the request, starting with the bottom tray and ending with the top tray (tray 1). The printer begins printing the job as soon as it finds the correct type and size.

NOTE The "autoselect" process occurs only if no specific tray is requested for the job. If a specific tray is requested, the job prints from the requested tray.

- If media is loaded in tray 1 and tray 1 is set **TRAY 1 SIZE=ANY** and **TRAY 1 TYPE=ANY** on the **PAPER HANDLING** menu, then the printer will always pull media from tray 1 first. See Customizing tray 1 operation for more information.
- If the search fails, then a message appears on the printer control-panel display requesting that you load the correct media type and size. You can load that media type and size, or you can override the request by selecting a different type and size at the printer control panel.
- If a tray runs out of media during a print job, then the printer automatically switches to any tray that contains the same media type and size.

The autoselect process changes somewhat if you customize tray 1 operation (as explained in Customizing tray 1 operation) or if you set tray 1 for manual feed (as explained in Feeding media from tray 1 manually).

Customizing tray 1 operation

The printer can be set to print from tray 1 if it is loaded, or to print only from tray 1 if the type of media that is loaded is specifically requested. See the user guide.

Setting	Explanation
TRAY 1 SIZE=ANY **TRAY 1 TYPE=ANY**	The printer usually pulls media from tray 1 first unless tray 1 is empty or closed. If you do not keep media in tray 1 all the time, or if you use tray 1 only to manually feed media, keep the default setting of **TRAY 1 SIZE=ANY** and **TRAY 1 TYPE=ANY** on the **Paper Handling** menu.
TRAY 1 SIZE= or **TRAY 1 TYPE=** a type other than **ANY**	The printer treats tray 1 like the other trays. Instead of looking for media in tray 1 first, the printer pulls media from the tray that matches type and size settings that are selected in the software. In the printer driver, you can select media from any tray (including tray 1) by type, size, or source. To print by type and size of media, see Printing by type and size of media (locking trays).

You can also determine whether the printer shows a prompt to ask if it can pull media from tray 1 if it cannot find the type and size that you requested in another tray. You can set the printer to always prompt you before pulling from tray 1 or only prompt you if tray 1 is empty. Set the **USE REQUESTED TRAY** setting on the **System Setup** submenu of the **Configure Device** menu.

Printing by type and size of media (locking trays)

Printing by type and size is a way to be sure that print jobs always print on the media that you want. You can configure the trays for the type, such as plain or letterhead, and size, such as letter or A4, that is loaded in them.

If you configure the trays this way and then select a certain type and size in the printer driver, the printer automatically selects the tray loaded with that type or size. You do not have to select a specific tray (selecting by source). Configuring the printer this way is especially helpful if the printer is shared, and more than one person loads or removes media frequently.

Some older model printers have a feature that "locks out" trays to prevent printing on the wrong media. Printing by type and size eliminates the need to lock trays. For more information about types and sizes that each tray supports, see Supported types and sizes of print media.

NOTE

To print by type and size from tray 2 or tray 3, it might be necessary to unload tray 1 and close it, or to set **TRAY 1 SIZE** and **TRAY 1 TYPE** to types other than **ANY** on the **Paper Handling** menu at the printer control panel. For more information, see Customizing tray 1 operation. Settings in a program or the printer driver override control-panel settings. (Program settings generally override printer-driver settings.)

To print by type and size of media

1. Be sure to load the trays correctly. (See the user guide.)
2. At the printer control panel, open the **Paper Handling** menu. Select the paper type for each tray. If you are unsure about which type you are loading, such as bond or recycled, check the label on the media package.
3. Select the paper-size settings at the printer control panel.
   - **Tray 1**: Set the paper size on the **Paper Handling** menu if the printer is set to **TRAY 1 TYPE=** a type other than **ANY**. If custom paper is loaded, also set the custom-paper size on the **Paper Handling** menu. (For more information, see the user guide.)
   - **Tray 2 and optional tray 3**: Set the paper size on the **Paper Handling** menu. These trays do not support custom sizes.
4. In the program or printer driver, select a type other than **Auto Select**.

NOTE

The type and size settings can also be configured in the HP Web Jetadmin software for networked printers.

Feeding media from tray 1 manually

The manual feed feature is another way of printing on special media from tray 1. Setting **MANUAL FEED** to **ON** either in the printer driver or at the printer control panel stops the printer after each job is sent, allowing you time to load special paper or other print media in tray 1. Press ✓ (SELECT button) to continue printing.

If tray 1 contains media when you send the print job, and the printer control panel has **TRAY 1 SIZE=ANY** and **TRAY 1 TYPE=ANY** as the default configuration for tray 1 operation, the printer will **not** stop and wait for media to be loaded. To have the printer wait, set **TRAY 1 SIZE** and **TRAY 1 TYPE** to types other than **ANY** on the **Paper Handling** menu.

NOTE

If the **SIZE** and **TYPE** are set to **ANY**, and **MANUAL FEED PROMPT** is set to **UNLESS LOADED**, then the media will be pulled from tray 1 without prompting. If **MANUAL FEED PROMPT** is set to **ALWAYS**, then the printer will prompt you to load media, even if tray 1 is set to **SIZE=ANY** and **TYPE=ANY**.

If you have selected **MANUAL FEED=ON** at the printer control panel, this setting will override the printer driver, and all print jobs that you send to the printer will request manually fed paper in tray 1 unless a specific tray has been selected in the printer driver. If this feature is to be used only occasionally, it is best to set **MANUAL FEED=OFF** at the printer control panel and to select the manual feed option in the printer driver on a job-by-job basis.

Selecting the correct fuser mode

The printer automatically adjusts the fuser mode based on the media type to which the tray is set. For example, heavy paper, such as card stock, might need a higher fuser-mode setting in order to make the toner adhere better to the page, but transparencies need the LOW fuser-mode setting to avoid damage to the printer. The default setting generally provides the best performance for most print-media types.

The fuser mode can be changed only if the media type has been set for the tray that you are using. (See Printing by type and size of media (locking trays).) After the media type has been set for the tray, then the fuser mode for that type can be changed on the **CONFIGURE DEVICE** menu in the **PRINT QUALITY** submenu at the printer control panel. (See the user guide.)

NOTE

Using a higher fuser mode, such as HIGH 1 or HIGH 2, improves the ability of the toner to adhere to paper, but it might cause other problems, such as excessive curl. The printer might print at a slower speed when the fuser mode is set to HIGH 1 or HIGH 2.

To reset the fuser modes to the default settings, open the **CONFIGURE DEVICE** menu at the printer control panel. On the **PRINT QUALITY** submenu, select **FUSER MODES**, and then select **RESTORE MODES**.

Using the embedded Web server

Use the embedded Web server (EWS) to view printer and network status and to manage printing functions from your computer instead of from the printer control panel. The following are examples of what you can do using the embedded Web server:

- View printer-control status information.
- Set the type of media that is loaded in each tray.
- Determine the remaining life for all supplies and order new ones.
- View and change tray configurations.
- View and change the printer control-panel menu configuration.
- View and print internal pages.
- Receive notification of printer and supplies events.
- View and change network configuration.

The embedded Web server feature requires at least 48 MB RAM and an HP Jetdirect print server in order to connect to your network.

To use the embedded Web server, you must have Microsoft Internet Explorer 5.01 or later or Netscape 6.2 or later for Windows, Mac OS, and Linux (Netscape only). Netscape Navigator 4.7 is required for HP-UX 10 and HP-UX 11. The embedded Web server works when the printer is connected to an IP-based network. The embedded Web server does not support IPX-based printer connections. You do not have to have Internet access to open and use the embedded Web server.

When the printer is directly connected to a computer, the embedded Web server is supported for Windows 98 and later. In order to use the embedded Web server with a direct connection, you must select the Custom installation option when you install the printer driver. Select the option to load the HP Toolbox. The proxy server is installed as part of the HP Toolbox software.

When the printer is connected to the network, the embedded Web server is automatically available.

Opening the embedded Web server

1. In a supported Web browser on your computer, type the IP address for the printer. To find the IP address, print a configuration page. For more information about printing a configuration page, see Configuration page.

NOTE After you open the URL, you can bookmark it so that you can return to it quickly in the future.

2. The embedded Web server has three tabs that contain settings and information about the printer: the **Information** tab, the **Settings** tab, and the **Networking** tab. Click the tab that you want to view.
3. See the following sections for more information about each tab.

Information tab

The Information pages group consists of the following pages.

- **Device Status**. This page shows the printer status and shows the life remaining of HP supplies, with 0% representing that a supply is empty. The page also shows the type and size of print media set for each tray. To change the default settings, click **Change Settings**.
- **Configuration page**. This page shows the information that is found on the printer configuration page.
- **Supplies Status**. This page shows the life remaining of HP supplies, with 0% representing that a supply is empty. This page also provides supplies part numbers. To order new supplies, click **Order Supplies** in the **Other Links** area of the window. To visit any Web site, you must have Internet access.
- **Event log**. This page shows a list of all printer events and errors.
- **Device information**. This page also shows the printer network name, address, and model information. To change these entries, click **Device Information** on the **Settings** tab.
- **Control panel**. Click this button to view the current status of the printer control panel.

Settings tab

Use this tab to configure the printer from your computer. The **Settings** tab can be password protected. If this printer is networked, always consult with the printer administrator before changing settings on this tab.

The **Settings** tab contains the following pages.

- **Configure Device**. Configure all printer settings from this page. This page contains the traditional menus found on printers that use a control-panel display. These menus include **Information**, **Paper Handling**, and **Configure Device**.
- **Alerts**. Network only. Set up to receive e-mail alerts for various printer and supplies events.
- **Email**. Network only. Used in conjunction with the Alerts page to set up incoming and outgoing e-mail.
- **Security**. Set a password that must be typed in order to gain access to the **Settings** and **Networking** tabs. Turn on and off certain features of the EWS.
- **Other Links**. Add or customize a link to another Web site. This link is shown in the **Other Links** area on all embedded Web server pages. These permanent links always appear in the **Other Links** area: **HP Instant Support**, **Order Supplies**, and **Product Support**.
- **Device Information**. Name the printer and assign an asset number to it. Type the name and e-mail address for the primary contact who will receive information about the printer.
- **Language**. Determine the language in which to show the embedded Web server information.
- **Time Services**. Set the printer to retrieve the date and time from a network server at regular intervals.

Networking tab

The network administrator can use this tab to control network-related settings for the printer when it is connected to an IP-based network. This tab will not appear if the printer is directly connected to a computer, or if the printer is connected to a network with anything other than an HP Jetdirect print server.

Other links

This section contains links that connect you to the Internet. You must have Internet access in order to use any of these links. If you use a dial-up connection and did not connect when you first opened the embedded Web server, you must connect before you can visit these Web sites. Connecting might require that you close the embedded Web server and reopen it.

- **HP Instant Support**. Connects you to the HP Web site to help you find solutions. This service analyzes your printer error log and configuration information to provide diagnostic and support information specific to your printer.
- **Order Supplies**. Click this link to connect to an ordering Web site and order genuine HP supplies, such as print cartridges and media.
- **Product Support**. Connects to the support site for the HP LaserJet 2400 series printer. Then, you can search for help regarding general topics.

Using HP Web Jetadmin software

HP Web Jetadmin is a Web-based software solution for remotely installing, monitoring, and troubleshooting network-connected peripherals. The intuitive browser interface simplifies cross-platform management of a wide range of devices, including HP and non-HP printers. Management is proactive, allowing network administrators the ability to resolve printer issues before users are affected. Download this free, enhanced-management software at http://www.hp.com/go/webjetadmin_software.

To obtain plug-ins to HP Web Jetadmin, click **plug-ins**, and then click the **download** link that is next to the name of the plug-in that you want. The HP Web Jetadmin software can automatically notify you when new plug-ins are available. On the **Product Update** page, follow the directions to automatically connect to the HP Web site.

If installed on a host server, HP Web Jetadmin is available to any client through a supported Web browser, such as Microsoft Internet Explorer 6.0 for Windows or Netscape Navigator 7.1 for Linux. Browse to the HP Web Jetadmin host.

NOTE Browsers must be Java®-enabled. Browsing from an Apple computer is not supported.

Using the HP Toolbox

HP Toolbox is a Web application that you can use for the following tasks:

- Check the printer status.
- Configure the printer settings.
- View troubleshooting information.
- View online documentation.

You can view the HP Toolbox when the printer is directly connected to your computer or when it is connected to the network. You must perform a complete software installation in order to use the HP Toolbox.

NOTE You do not have to have Internet access to open and use the HP Toolbox. However, if you click a link in the **Other Links** area, you must have Internet access to go to the site that is associated with the link. See Other links for more information.

Supported operating systems

The HP Toolbox is supported for the following operating systems:

- Windows 98, 2000, Me, XP, and Server 2003
- Mac OS X, Version 10.2 or higher

Supported browsers

To use the HP Toolbox, you must have one of the following browsers. All pages can be printed from the browser.

Windows

- Microsoft Internet Explorer 5.5 or higher
- Netscape Navigator 7.0 or higher
- Opera Software ASA Opera 6.05 or higher

Macintosh (OS X only)

- Microsoft Internet Explorer 5.1 or higher
- Netscape Navigator 7.0 or higher

To view the HP Toolbox

1. Open the HP Toolbox in one of these ways:
   - On the Windows desktop, double-click the HP Toolbox icon.
   - From the Windows **Start** menu, click **Programs**, and then click **HP Toolbox**.
   - For Macintosh OS X, on the hard drive, click **Applications**, and then click the **Utilitites** folder. Double-click the **HP Toolbox icon**.

NOTE After you open the URL, you can bookmark it so that you can return to it quickly in the future.

2. The HP Toolbox opens in a Web browser. The HP Toolbox software contains the following sections:
   - Status tab
   - Troubleshooting tab
   - Alerts tab
   - Documentation tab
   - Device Settings window
   - Toolbox links
   - Other links

Status tab

The **Status** tab has links to the following main pages:

- **Device Status**. View printer status information. This page indicates printer conditions such as a jam or an empty tray. After you correct a problem with the printer, click the **Refresh** button to update the device status.
- **Supplies Status**. View detailed supplies status such as the percent of life remaining in the print cartridge and the number of pages that have been printed with the current print cartridge. This page also has links to order supplies and to find recycling information.
- **Print Info**. Print the configuration page and various other information pages that are available for the printer, such as the supplies status page, the demo page, and the menu map.

Troubleshooting tab

The **Troubleshooting** tab has links to the following main pages:

- **Print Quality Tools**. View general troubleshooting information, view information about troubleshooting print-quality problems, and calibrate the printer to maintain color print quality.
- **Maintenance**. View information about managing printer supplies, view information about replacing the print cartridges, and view information about replacing other printer supplies.
- **Error Messages**. View information about error messages.
- **Paper Jams**. View information on locating and clearing jams.
- **Supported Media**. View information about media that the printer supports, view information about configuring the trays, and view information about solving problems that are related to print media.
- **Printer Pages**. Print various pages that are useful for troubleshooting printer problems including the configuration page, the supplies page, the event log page, and the usage page.

Alerts tab

Use the **Alerts** tab to configure the printer to automatically notify you of printer alerts. The **Alerts** tab has links to the following main pages:

- Set up status alerts
- Administrative settings

Set up status alerts page

On the Set up status alerts page, you can choose to turn alerts on or off, specify when the printer should send an alert, and select from two different types of alerts:

- Pop-up message
- System tray icon

Click **Apply** to activate the settings.

Administrative settings page

On the Administrative settings page, you can set the frequency of how often the HP Toolbox checks for printer alerts. Three settings are available:

- **Less Often**. The HP Toolbox checks for alerts once per minute (every 60 seconds).
- **Normal**. The HP Toolbox checks for alerts twice per minute (every 30 seconds).
- **More Often**. The HP Toolbox checks for alerts twenty times per minute (every 3 seconds).

NOTE If you want to reduce network input/output (I/O) traffic, reduce the frequency at which the printer checks for alerts.

Documentation tab

The **Documentation** tab contains links to these information sources:

- **Install Notes**. Provides specific installation instructions and information regarding your product before you install and use the printing system.
- **User Guide**. Contains the information about the printer usage, warranty, specifications, and support that you are currently reading. The user guide is available in both HTML and PDF format.

Device Settings window

When you click the **Device Settings** button, the embedded Web server opens in a new window. See Using the embedded Web server.

Toolbox links

The **toolbox Links** item at the left of the screen provides links to the following options:

- **Select a device**. Select from all of the HP Toolbox-enabled devices.
- **View current alerts**. View the current alerts for all printers that have been set up. (You must be printing to view the current alerts.)
- **Text only page**. View HP Toolbox as a site map with links to all of the individual pages within HP Toolbox and the **Device Settings** window.

Other links

This section contains links that connect you to the Internet. You must have Internet access in order to use any of these links. If you use a dial-up connection and did not connect when you first opened the HP Toolbox, you must connect before you can visit these Web sites. Connecting might require that you close the HP Toolbox and reopen it.

- **HP instant support**. Connects to the HP instant support page for the product.
- **Product Registration**. Connects to the HP product registration Web site.
- **Product Support**. Connects to the support site for the printer. Then, you can search for help with a specific problem.

Uninstalling the HP Toolbox

This section explains how to uninstall the HP Toolbox.

To uninstall the HP Toolbox by using the Windows desktop shortcut

1. From the **Start** menu point to **Programs**, point to HP LaserJet 2400 series, and then click **Uninstall hp LaserJet toolbox**.
2. Follow the onscreen instructions.

Checking the printer configuration

At the printer control panel, you can print pages that give details about the printer and its current configuration. The following information pages are described here:

- Menu map
- Configuration page
- Supplies status page
- PS or PCL font list

For a complete list of printer information pages, see the **INFORMATION** menu at the printer control panel (see the user guide).

Keep these pages nearby for troubleshooting.

Menu map

Print the menu map to see the current settings for the menus and items that are available at the printer control panel.

To print a menu map

1. Press ✓ (SELECT button) to open the menus.
2. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **INFORMATION**, and then press ✓ (SELECT button).
3. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **PRINT MENU MAP**, and then press ✓ (SELECT button).

You might want to store the menu map near the printer for reference. The content of the menu map varies, depending on the options currently installed in the printer. (Many of these values can be overridden in the program or printer driver.)

For a complete list of control panel items and possible values, see the user guide. To change a control-panel setting, see the user guide.

Configuration page

Use the configuration page to view current printer settings, to help troubleshoot printer problems, or to verify installation of optional accessories, such as memory (DIMMs), trays, and printer languages.

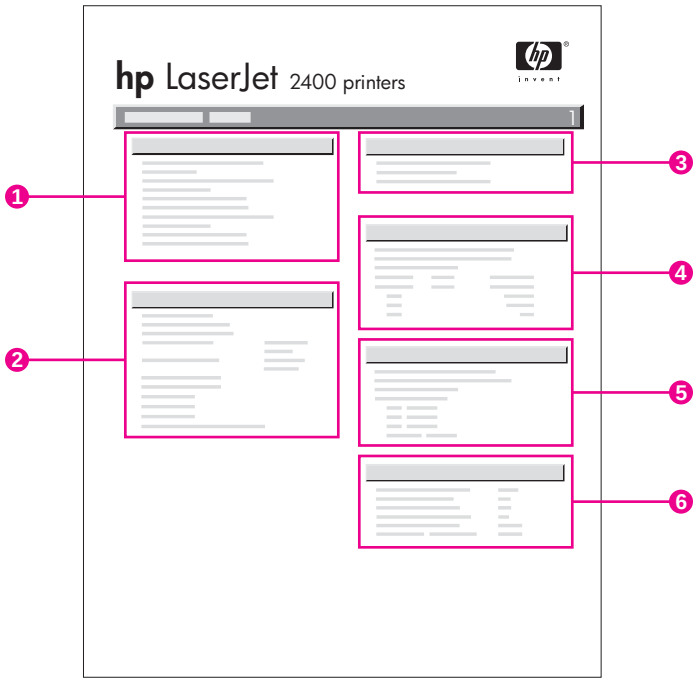
NOTE If an HP Jetdirect print server is installed, an HP Jetdirect configuration page prints as well. The IP address of the HP Jetdirect print server appears on this page.

To print a configuration page at the control panel

1. Press ✓ (SELECT button) to open the menus.
2. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **INFORMATION**, and then press ✓ (SELECT button).
3. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **PRINT CONFIGURATION**, and then press ✓ (SELECT button).

An example of the configuration page follows. The content of the configuration page varies, depending on the options currently installed in the printer.

NOTE You can also obtain configuration information in the embedded Web server or the HP Toolbox. For details, see Using the embedded Web server or see Using the HP Toolbox.



1	Printer Information	Lists the model, serial number, page counts, and other information for the printer.

2	Installed Personalities and Options	Lists all printer languages that are installed (such as PS and PCL) and lists options that are installed in each DIMM slot and EIO slot.
3	Memory	Lists printer memory, PCL Driver Work Space (DWS), and resource saving information.
4	Event Log	Lists the number of entries in the event log, the maximum number of entries viewable, and the last three entries.
5	Security	Lists the status of the printer control panel lock, control panel password, and disk drive (if one is installed in the printer).
6	Paper Trays and Options	Lists the size settings for all trays and lists optional paper-handling accessories that are installed.

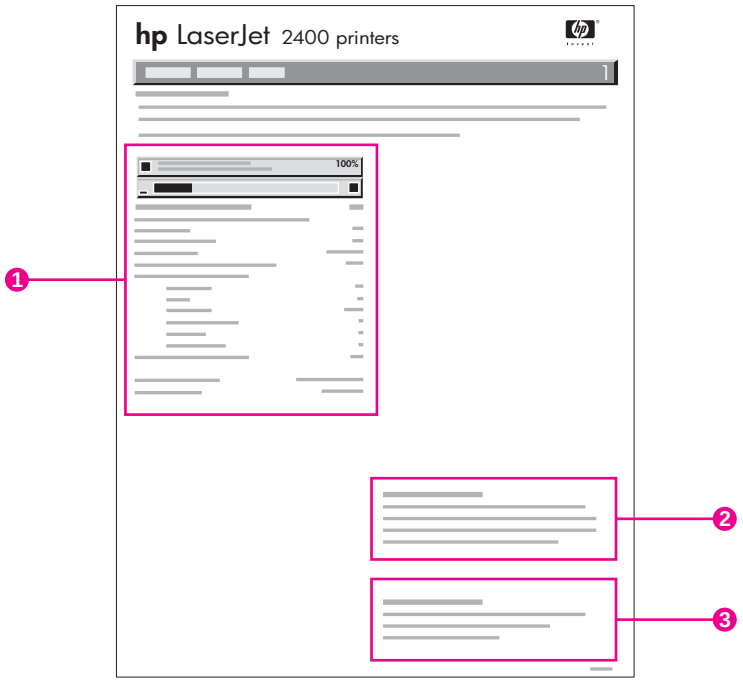
Supplies status page

Use the supplies status page to obtain information about the print cartridge that is installed in the printer, the remaining print-cartridge life, and the number of pages and jobs that have been processed.

NOTE You can also obtain configuration information in the embedded Web server or the HP Toolbox. For details, see Using the embedded Web server or see Using the HP Toolbox.

To print a supplies status page at the control panel

1. Press ✓ (SELECT button) to open the menus.
2. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **INFORMATION**, and then press ✓ (SELECT button).
3. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **PRINT SUPPLIES STATUS PAGE**, and then press ✓ (SELECT button).



1 Information about the print cartridge, including estimated pages remaining
2 Information about ordering replacement supplies
3 Information about recycling supplies

PS or PCL font list

Use the font lists to see which fonts are currently installed in the printer. The font lists also show which fonts are resident on an optional hard disk accessory or flash DIMM.

To print a PS or PCL font list

1. Press ✓ (SELECT button) to open the menus.
2. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **INFORMATION**, and then press ✓ (SELECT button).
3. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **PRINT PS FONT LIST** or **PRINT PCL FONT LIST**, and then press ✓ (SELECT button).

The PS font list shows the PS fonts that are installed, and gives a sample of those fonts. The following information can be found on the PCL font list:

- **Font** gives the font names and samples.
- **Pitch/Point** indicates the pitch and point size of the font.
- **Escape Sequence** (a PCL programming command) is used to select the designated font. (See the legend at the bottom of the font list page.)

NOTE For information about using printer commands to select a font with MS-DOS programs, see the user guide.

- **Font #** is the number used to select fonts at the printer control panel (not in the program). Do not confuse the font # with the font ID. The number indicates the CompactFlash slot where the font is stored.
  - **SOFT**: Downloaded fonts, which stay resident in the printer until other fonts are downloaded to replace them, or until the printer is turned off.
  - **INTERNAL**: Fonts that permanently reside in the printer.
- **Font ID** is the number you assign to soft fonts when you download them through software.

Managing the print cartridge

This section provides information about HP print cartridges, their life expectancies, how to store them, and how to identify genuine HP supplies. Information also appears about non-HP print cartridges.

- HP print cartridges
- Non-HP print cartridges
- Print-cartridge authentication
- Print-cartridge storage
- Print-cartridge life expectancy
- Checking the supply level
- Cartridge-low and cartridge-out conditions

HP print cartridges

When you use a genuine HP print cartridge, you can obtain several types of information, such as the following:

- Amount of toner remaining
- Estimated number of pages remaining
- Number of pages printed

Non-HP print cartridges

Hewlett-Packard Company cannot recommend use of non-HP print cartridges, either new or remanufactured. Because they are not HP products, HP cannot influence their design or control their quality. Service or repair required as a result of using a non-HP print cartridge will **not** be covered under the printer warranty.

Using genuine HP supplies ensures the availability of all HP printing features.

Print-cartridge authentication

The printer will let you know if a print cartridge is not a genuine HP print cartridge when you insert it into the printer. If you believe that you purchased a genuine HP supply, visit us at http://www.hp.com/go/anticounterfeit.

Print-cartridge storage

Do not remove the print cartridge from its package until you are ready to use it.

Always store the print cartridge in the proper environment. The temperature should be between -20°C and 40°C (-4°F to 104°F). The relative humidity should be between 10% and 90%.

CAUTION To prevent damage to the print cartridge, do not expose it to light for more than a few minutes.

Print-cartridge life expectancy

The life of the print cartridge depends on the amount of toner that print jobs require and the length of life for the components inside the cartridge. When printing text at 5% coverage (typical for a business letter), the HP print cartridge lasts an average of 6,000 (Q6511A) or 12,000 (Q6511X) pages.

At any time, you can verify life expectancy by checking the supply level, as described in Checking the supply level.

Checking the supply level

You can check the supply (toner) level by using the printer control panel, the embedded Web server, HP Toolbox software, or HP Web Jetadmin.

To check the supply level by using the control panel

1. Press MENU to open the menus.
2. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **INFORMATION**, and then press ✓ (SELECT button).
3. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **PRINT SUPPLIES STATUS PAGE**, and then press ✓ (SELECT button). See Supplies status page for information about the supplies status page.

To check the supply level by using the embedded Web server

1. In your Web browser, type the IP address for the printer home page. This takes you to the printer status page. (See Opening the embedded Web server.)
2. On the left side of the screen, click **Supplies Status**. This takes you to the supplies status page, which provides supply level information. (See Supplies status page for information about the supplies status page.)

To check the supply level by using the HP Toolbox software

You can configure HP Toolbox to notify you when the print cartridge is low. You can choose to receive alerts by e-mail or as a pop-up message or taskbar icon. To check the supplies status by using the HP Toolbox software, click the **Status** tab, and then click **Supplies Status**.

To check the supply levels by using HP Web Jetadmin

In HP Web Jetadmin, select the printer device. The device status page shows supply-level information.

Cartridge-low and cartridge-out conditions

The printer alerts you if the print cartridge is low on toner or out of toner.

When the cartridge is low on toner or drum life

When the cartridge is low, the printer control panel shows the **ORDER CARTRIDGE** message. The message first appears when about 16% (6,000-page cartridge) or about 8% (12,000-page cartridge) of the life remains in the print cartridge. This percentage is set with the intent of providing approximately 2 weeks of typical use before the cartridge is depleted. You should have time to purchase a new cartridge before the old cartridge is depleted.

The default is for the printer to continue printing until the cartridge runs out, but you might prefer to have the printer stop instead of continuing when the **ORDER CARTRIDGE** message first appears—for example, if you want print quality to remain consistently high during print jobs, or if you do not want the cartridge to run out during a long print job. To configure the printer to stop, in the **CONFIGURE DEVICE** menu, under **SYSTEM SETUP**, set **CARTRIDGE LOW** to **STOP**. Then, when **REPLACE CARTRIDGE** appears, the printer will stop printing. You can resume printing by pressing ✓ (SELECT button) for each print job.

When the cartridge is out of toner or drum life

The **REPLACE CARTRIDGE** message appears in one of these situations:

- **When the print cartridge is out of toner.** If **CARTRIDGE OUT** is set to **CONTINUE** (in the **SYSTEM SETUP** submenu of the **CONFIGURE DEVICE** menu), the printer continues printing without interaction until the cartridge reaches the end of drum life. HP does not guarantee print quality after the **REPLACE CARTRIDGE** message first appears. Replace the print cartridge as soon as possible. (See Parts and diagrams.) The **REPLACE CARTRIDGE** message remains until you replace the print cartridge. If **CARTRIDGE OUT** is set to **STOP**, the printer stops printing until you replace the print cartridge or resume printing by configuring the printer to continue: In the **CONFIGURE DEVICE** menu, under **SYSTEM SETUP**, set **CARTRIDGE OUT** to **CONTINUE**.
- **When the drum life of the print cartridge is out**. You must replace the print cartridge to continue printing. No override is possible, even if toner remains in the cartridge. (See Parts and diagrams.) This situation occurs to protect the printer.

4 Maintenance

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Cleaning the printer

Over time, particles of toner and paper accumulate inside the printer. This can cause print-quality problems during printing. Cleaning the printer eliminates or reduces these problems.

Clean the paper path and print-cartridge areas every time that you change the print cartridge or whenever print-quality problems occur. As much as possible, keep the printer from dust and debris.

Cleaning the outside

Clean the outside of the printer with a cloth that has been dampened with water.

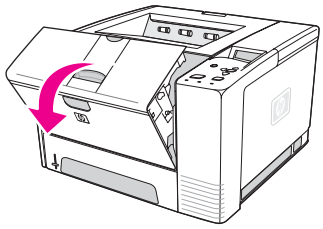
CAUTION Do not use ammonia-based cleaners on or around the printer.

Cleaning the paper path and print-cartridge areas

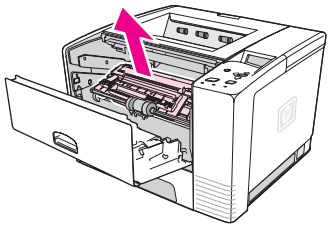
Over time, particles of toner and paper accumulate inside the printer. This can cause print-quality problems during printing. Cleaning the printer eliminates or reduces these problems.

To clean the inside of the printer

1. Turn the printer off and unplug the power cord.
2. Open the top cover.

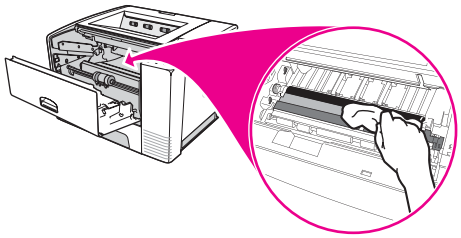


3. Remove the print cartridge.



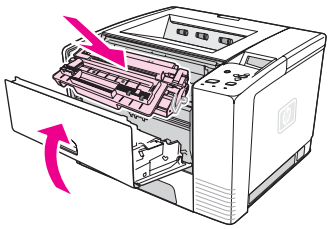
CAUTION To prevent damage to the print cartridge, do not expose it to light for more than a few minutes. Be careful not to touch the transfer roller (the black, rubber roller located underneath the print cartridge). Skin oils on the roller can cause print-quality problems.

4. With a dry, lint-free cloth, wipe any residue from the paper path area and the print cartridge cavity.



5. Reinstall the print cartridge and close the top cover.

NOTE If the print cartridge is difficult to reinstall, make sure that the registration plate has been flipped back down into position and that you have pushed the print cartridge firmly in place.



6. Plug in the power cable and turn the printer on.

Cleaning the fuser

Run the printer cleaning page to keep the fuser free of toner and paper particles that can sometimes accumulate. Accumulation of toner and particles can cause specks to appear on the front or back side of your print jobs.

To ensure optimum print quality, HP recommends that you use the cleaning page every time that you replace the print cartridge or on an automatic interval that you can set up.

The cleaning procedure takes about 2.5 minutes to complete. A **CLEANING** message appears on the printer control panel display while the cleaning is taking place.

To run the cleaning page

In order for the cleaning page to work correctly, print the page on copier-grade paper (not bond, heavy, or rough paper).

1. If your printer model includes a duplexer, open the rear output bin.
2. Press MENU to open the menus.
3. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **CONFIGURE DEVICE**, and then press ✓ (SELECT button).
4. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **PRINT QUALITY**, and then press ✓ (SELECT button).
5. Use ▲ (UP button) or ▼ (DOWN button) to scroll to **CREATE CLEANING PAGE**, and then press ✓ (SELECT button).
6. Follow the instructions on the cleaning page to complete the cleaning process.
7. If your printer model includes a duplexer, close the rear output bin.

5 Theory of operation

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Introduction

This chapter presents an overview of the relationships among major components in the printer, and includes a detailed discussion of the image-formation system. The following systems are discussed:

- Engine control system
- Laser/scanner system
- Pickup/feed/delivery system
- Image-formation system

Figure 5-1. Block diagram illustrates the relationships between the four systems.

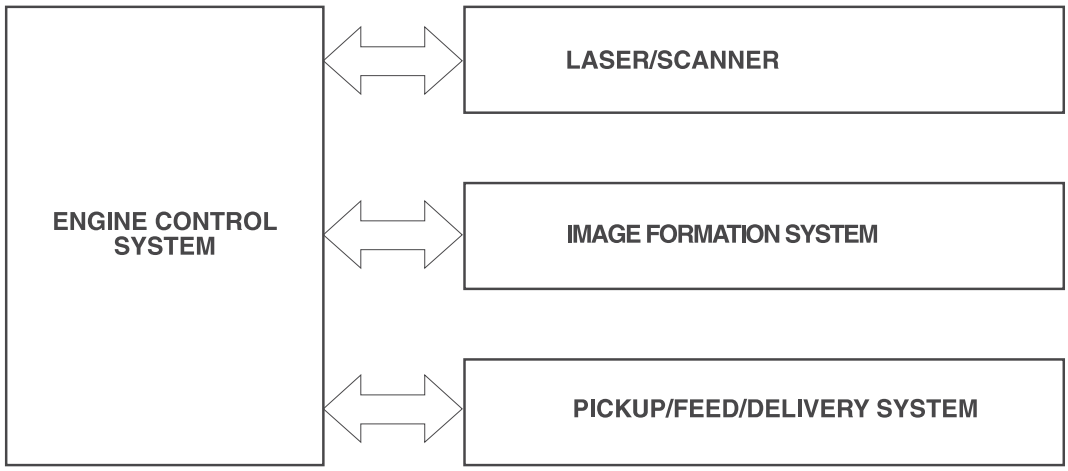

Figure 5-1. **Block diagram**

Internal components

Figure 5-2. Cross-section of printer highlights the major internal components.

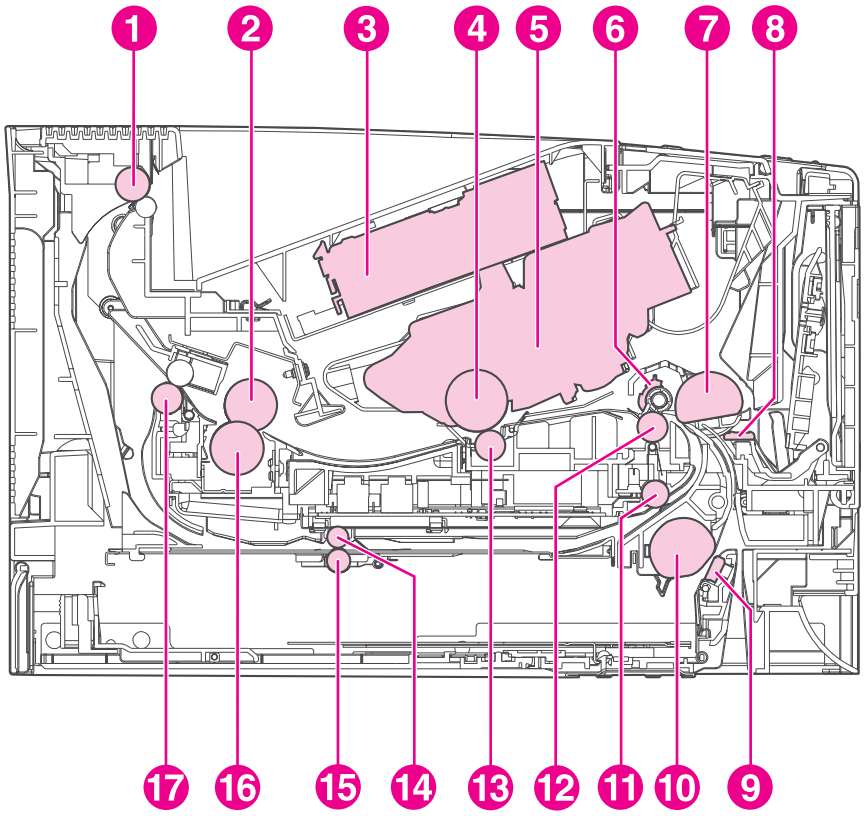

Figure 5-2. **Cross-section of printer**

1	Top output-bin delivery roller
2	Fuser film
3	Laser/scanner
4	Photosensitive drum
5	Print cartridge
6	Registration shutter
7	Tray 1 pickup roller
8	Tray 1 separation pad
9	Tray 2 separation pad
10	Tray 2 pickup roller
11	Duplexer pickup roller
12	Feed roller
13	Transfer roller
14	Duplexer feed roller
15	Oblique roller
16	Pressure roller
17	Fuser-delivery roller

Timing

Sequence of operation

The microprocessor on the dc controller controls the printer operation sequences. Table 5-1. Operation sequences describes engine operations for each period of a print operation. Table 5-2. Power-on sequence describes each step of the power-on sequence.

Table 5-1. Operation sequences

Name	Timing	Purpose
WAIT	From power-on until the end of the main motor initial drive	Detects presence of a print cartridge. Clears potential from the drum surface and cleans the transfer roller. See Table 5-2. Power-on sequence for a complete description of the WAIT (power-on) period. Also see General timing diagrams for detailed information about printer timing.
STBY (standby)	From the end of the WAIT or LSTR period until either a print command is sent from the formatter or the power is turned off.	Prepares the printer to receive print commands
INTR (initial rotation)	From the time of the print command until the pickup solenoid is turned on.	Prepares the photosensitive drum for printing.
PRINT	From the end of the INTR period until the top-of-page sensor detects the trailing edge of the media.	Forms the image on the photosensitive drum and transfers the toner image to the media.
LSTR (last rotation)	From the end of the PRINT period until the main motor stops rotating.	Delivers the last page of a print job. After LSTR, the printer either returns to STBY or, if another print command was sent from the formatter, enters INTR.

Table 5-2. Power-on sequence

Step	Action
1	Power-on
2	CPU initialization
3	Video-interface communication start
4	Sensors check for residual media
5	Main motor initial drive
6	Fuser heater initial drive. The fuser heater reaches a surface temperature of 120°C.
7	Fuser-motor initial drive
8	Laser/scanner-motor initial drive

Table 5-2. Power-on sequence (continued)

Step	Action
9	High-voltage control Detection of the presence of a print cartridge Cleaning of the transfer roller after the primary charging ac bias is turned on
10	Failure/abnormality check: detection of laser/scanner failure, fuser failure, and open covers
11	Communication with the memory tag

Engine control system

The engine control system coordinates all printer functions, according to commands that the formatter sends. It drives the laser/scanner system, the image formation system, and the pickup/feed/delivery system.

The engine control system contains the following components:

- Dc controller
- High-voltage PCA

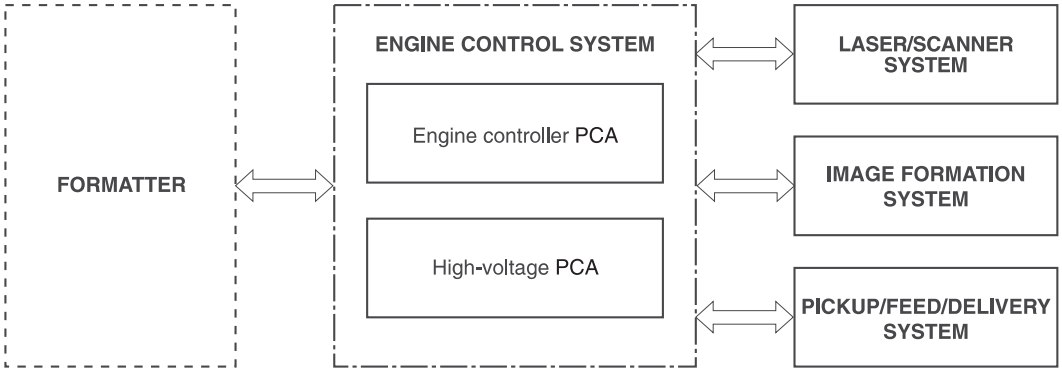

Figure 5-3. **Engine control system**

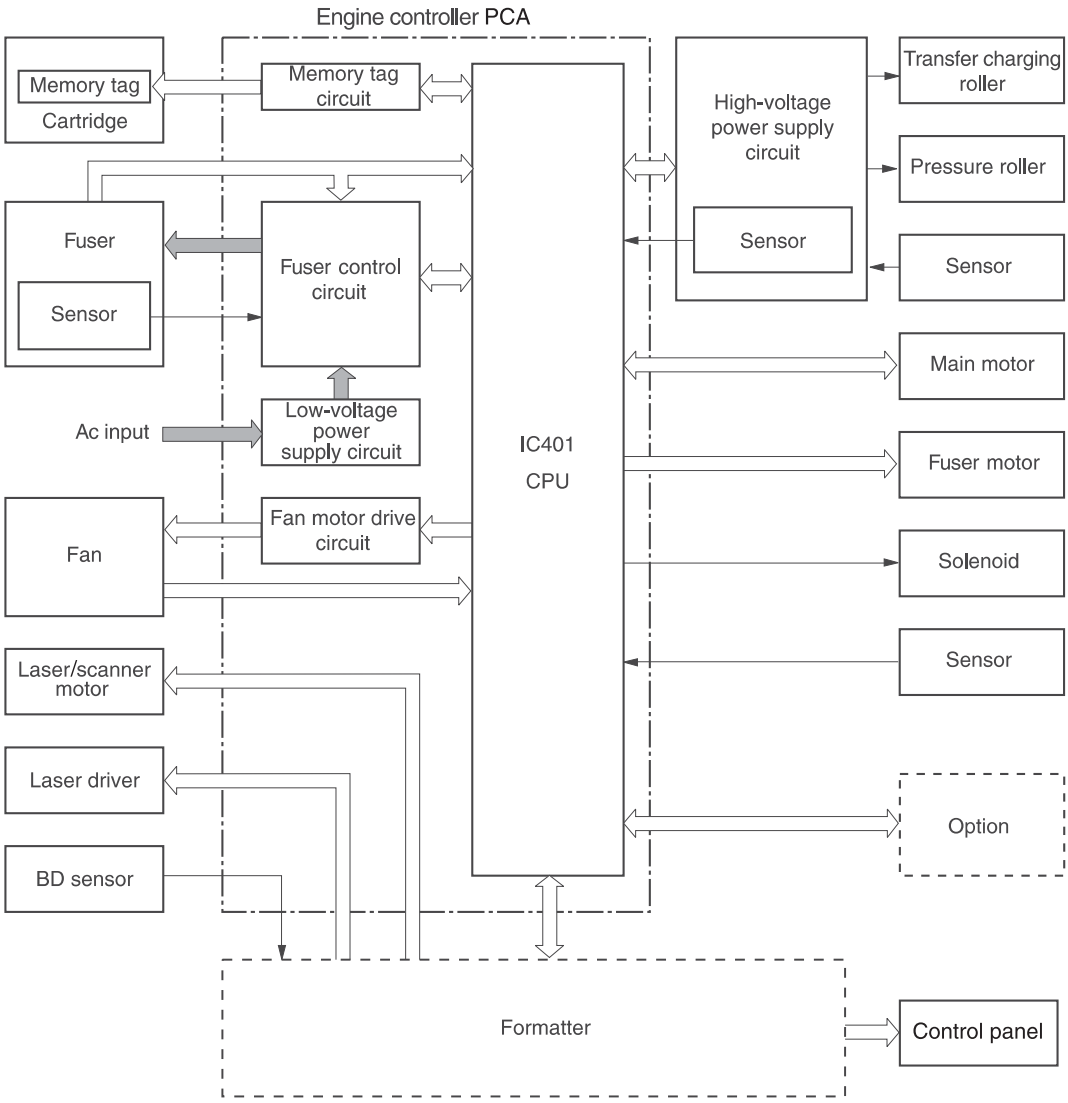

Figure 5-4. **Engine control system circuit diagram**

Laser/scanner system

The laser/scanner system receives video signals from the dc controller and the formatter and converts the signals into latent images on the photosensitive drum.

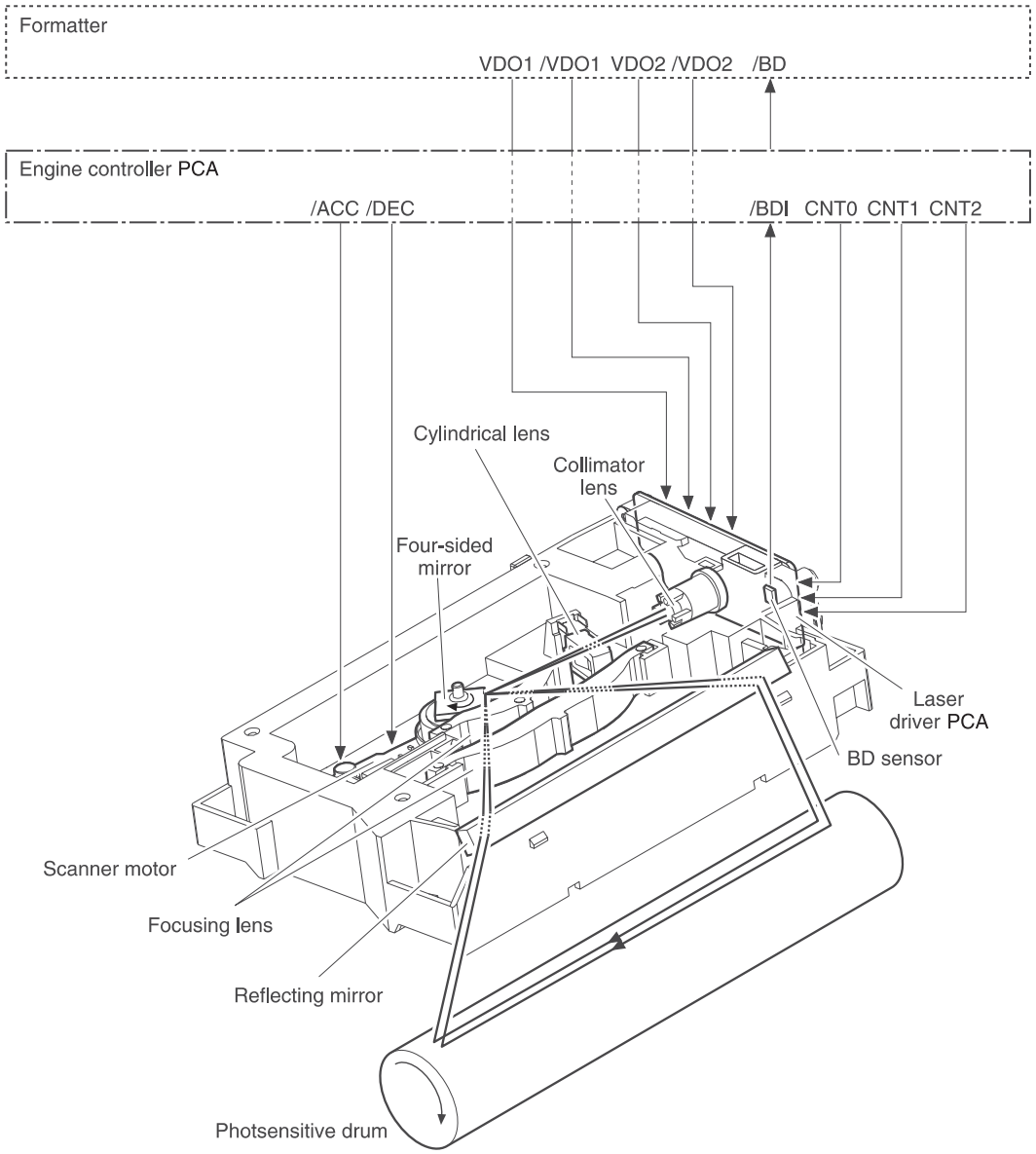

Figure 5-5. **Laser/scanner system**

Pickup/feed/delivery system

The pickup/feed/delivery system consists of several types of feed rollers and sensors. The dc controller uses two motors and two solenoids to drive the rollers. Three media-detection sensors detect media as it passes through the printer. If media does not reach or pass each sensor within a specified time period, the dc controller determines that a jam has occurred and alerts the formatter.

The following components are identified in Figure 5-6. Pickup/feed/delivery system:

- M1, main motor
- M2, fuser motor
- SL1, tray 1 pickup solenoid
- SL2, tray 2 pickup solenoid
- PS2, duplexer media-detection sensor
- PS4, tray 2 media-detection sensor
- PS901, top-of-page sensor
- PS902, tray 1 media-detection sensor

- SR1, top output-bin delivery flag
- SR2, fuser-delivery flag

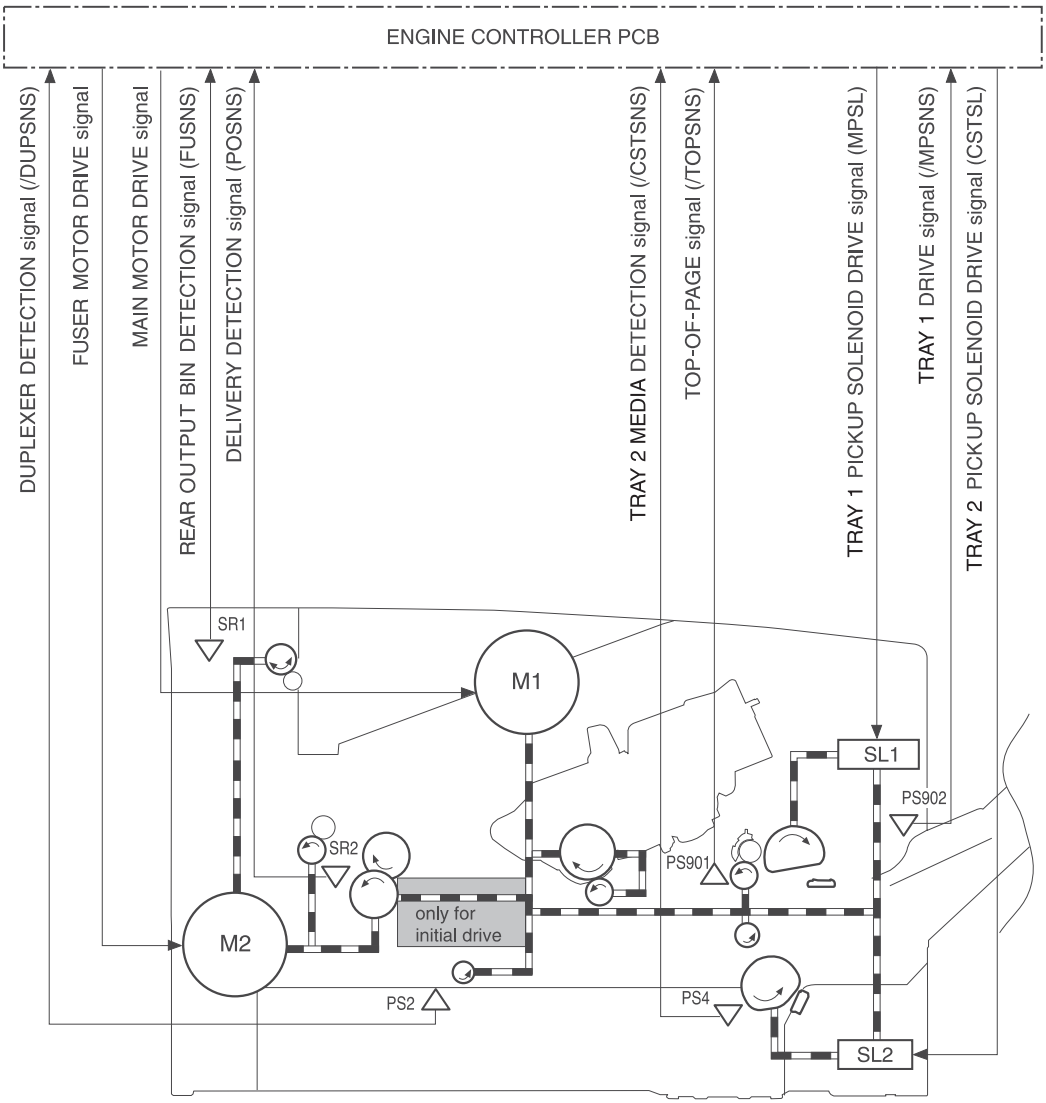

Figure 5-6. **Pickup/feed/delivery system**

Image-formation system

Laser printing requires the interaction of several different technologies, including electronics, optics, and electrophotographics, to provide a printed page.

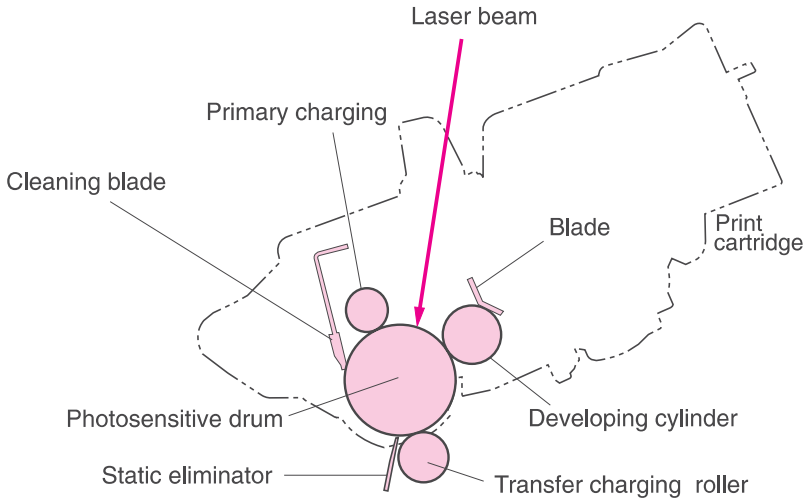

Figure 5-7. **Print cartridge diagram**

Each process functions independently and must be coordinated with the other printer processes. Image formation consists of the following five processes:

- Electrostatic latent-image formation
- Developing
- Transfer
- Fusing
- Drum cleaning

The five processes contain eight steps, which are shown in the figure Figure 5-8. Image-formation system and described in the following sections.

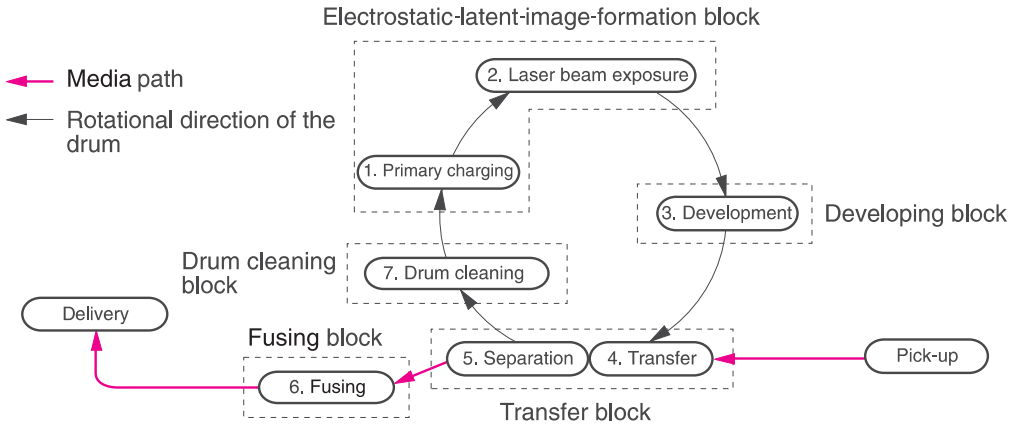

Figure 5-8. **Image-formation system**

Step 1: Primary charging

Dc and ac biases are applied to the primary charging roller, which transfers a uniform negative potential to the photosensitive drum.

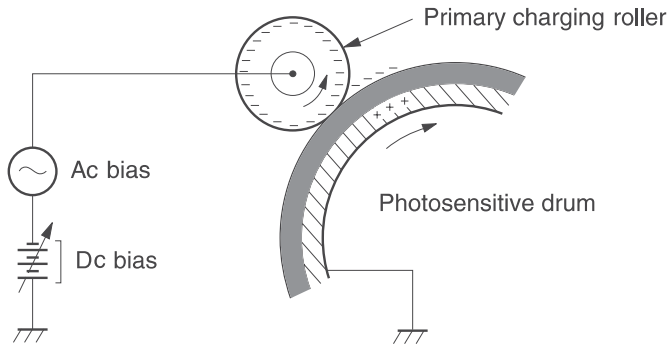

Figure 5-9. **Primary charging**

Step 2: Laser beam exposure

The laser beam scans the photosensitive drum to neutralize negative charges on parts of the drum. An electrostatic latent image is formed on the drum where negative charges were neutralized.

Step 3: Developing

The developing cylinder comes in contact with the photosensitive drum to deposit toner onto the electrostatic latent image.

NOTE The charges on the exposed area of the drum are shown as positive in Figure 5-10. Developing. The charges are actually negative, but they are more positive than the charges on the developing cylinder.

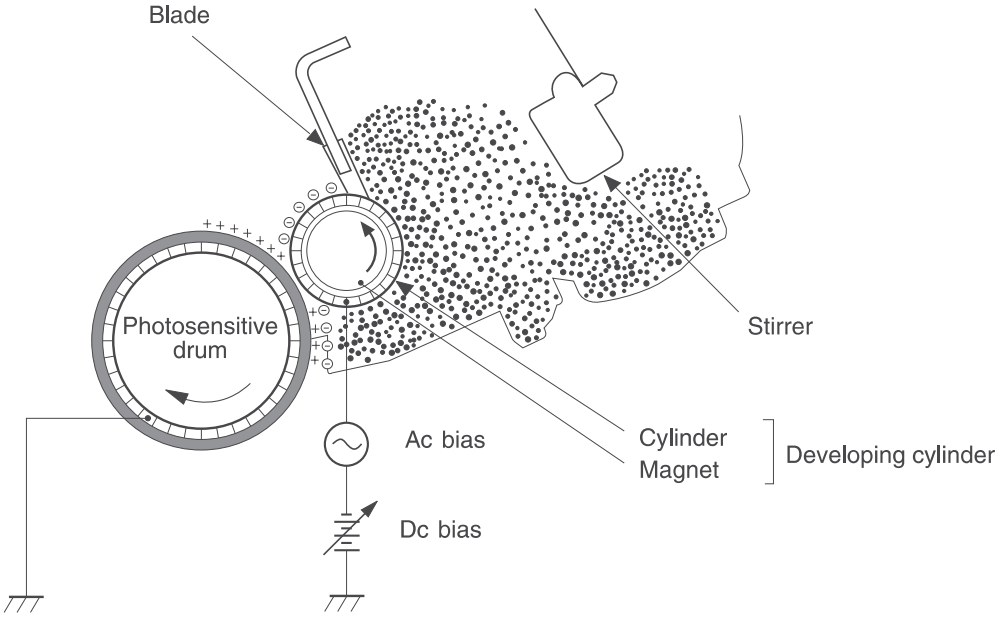

Figure 5-10. Developing

Toner acquires a negative charge through friction from the developing cylinder and the blade. When the negatively charged toner comes in contact with the drum, the toner adheres to the electrostatic latent image. The image on the drum becomes visible because of the toner.

Step 4: Transfer

The transfer charging roller, to which a dc positive bias is applied, imparts a positive charge on the print media. When the print media comes in contact with the photosensitive drum, the toner is transferred to the print media.

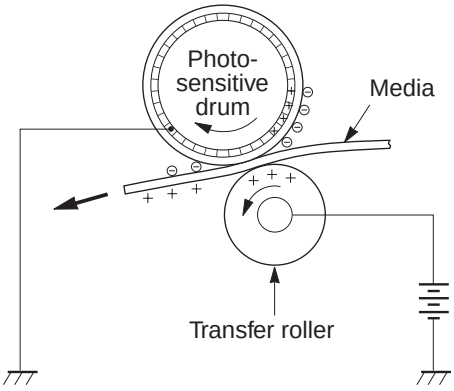

Figure 5-11. Transfer

Step 5: Separation

The elasticity of the print media causes its separation from the photosensitive drum. A static charge eliminator aids separation by weakening any electrostatic adhesion.

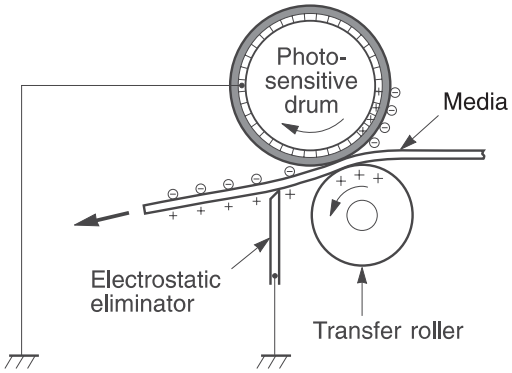

Figure 5-12. **Separation**

Step 6: Fusing

The dc negative bias applied to the fusing film strengthens the holding force of the toner on the print media and prevents the toner from scattering.

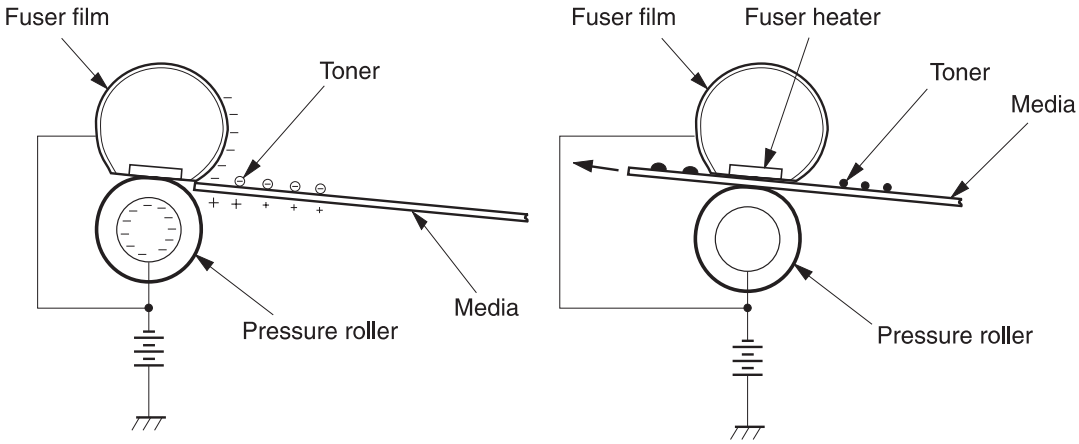

Figure 5-13. **Fusing**

Step 7: Drum cleaning

The cleaning blade scrapes the residual toner off of the photosensitive drum and deposits it into the waste toner case.

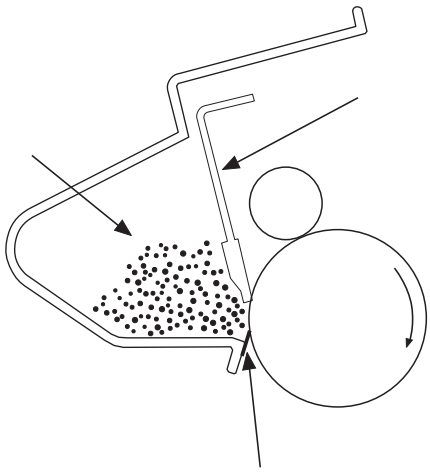

Figure 5-14. **Drum cleaning**

Print cartridge memory system

The memory tag is a nonvolatile memory built into the print cartridge. The cartridge usage condition is detected as the engine controller reads or writes the data stored on the memory tag. The engine controller renews the information in the prescribed timing and reads or writes it from or to the memory tag.

The engine controller commands the memory tag to read or write with the following conditions:

- **Read**
  - Power is ON
  - The top cover is closed
  - A command has been received from the formatter
- **Write**
  - A page of media is printed.
  - A command has been received from the formatter

When the engine controller failed to read or write three times in a row, it determines that the memory tag is abnormal and notifies the formatter of a "cartridge memory abnormality warning".

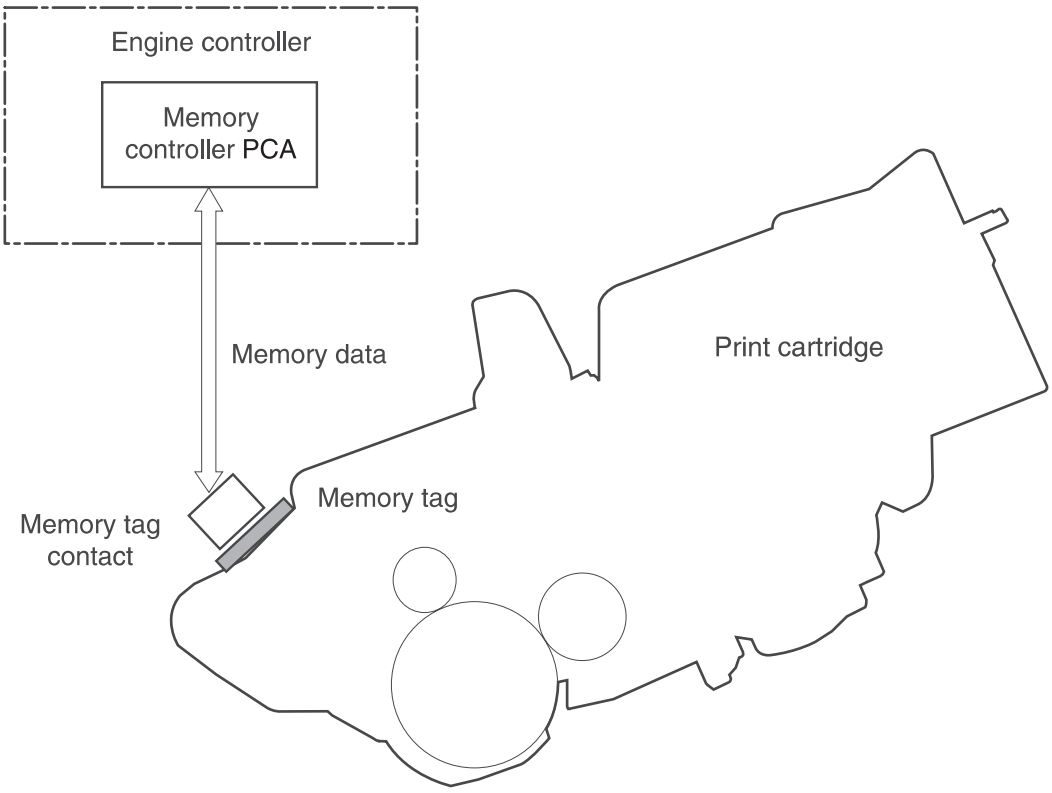

Figure 5-15. **Print cartridge memory tag**

6 Removal and replacement

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Introduction

This chapter documents removal and replacement of field replaceable units (FRUs) only.

Removal and replacement strategy

Replace parts in the reverse order of their removal. Directions for difficult or critical replacement procedures are included.

WARNING! The sheet-metal edges of the product can be sharp. Use caution when working on the product.

NOTE Note the length, diameter, color, type, and location of each screw. Be sure to return each screw to its original location during reassembly.

Incorrectly routed or loose cables can interfere with other internal components and can become damaged or broken. Frayed or pinched cables can be difficult to locate. When reconnecting the cables, always use the provided wire loops, lance points, or cable guides.

Electrostatic discharge

CAUTION The product contains parts that are sensitive to electrostatic discharge (ESD). Always service the product at an ESD-protected workstation, or use an ESD mat.

Watch for the ESD symbol (shown at left) to identify the parts that are sensitive to ESD. Protect these parts by using an ESD wrist strap and by placing ESD-sensitive parts into protective ESD pouches.

User-replaceable parts

To remove and replace the pickup roller or separation pad, see Separation pad.

Required tools

The following tools are needed to service this product:

- #2 Phillips screwdriver with magnetic tip
- Small flatblade screwdriver
- Small needle-nose pliers
- ESD mat
- Penlight

CAUTION A pozidriv screwdriver will damage screw heads on the product. Use a #2 Phillips screwdriver.

If you use a multispeed screwdriver, use a torque limiter.

Before performing service

Follow the pre-service procedures before you perform service.

Pre-service procedures

1. Remove all media from the product.
2. Place the product on an ESD mat. If an ESD mat or an ESD-protected workstation is not available, discharge body static and ground the product chassis before servicing the product.
3. Unplug the power cord and the interface cable.
4. Lift the printer off of any installed optional trays.
5. Remove the print cartridge.
6. Remove tray 2.

Parts removal order

Use the following diagram to determine which parts must be removed before removing other parts.

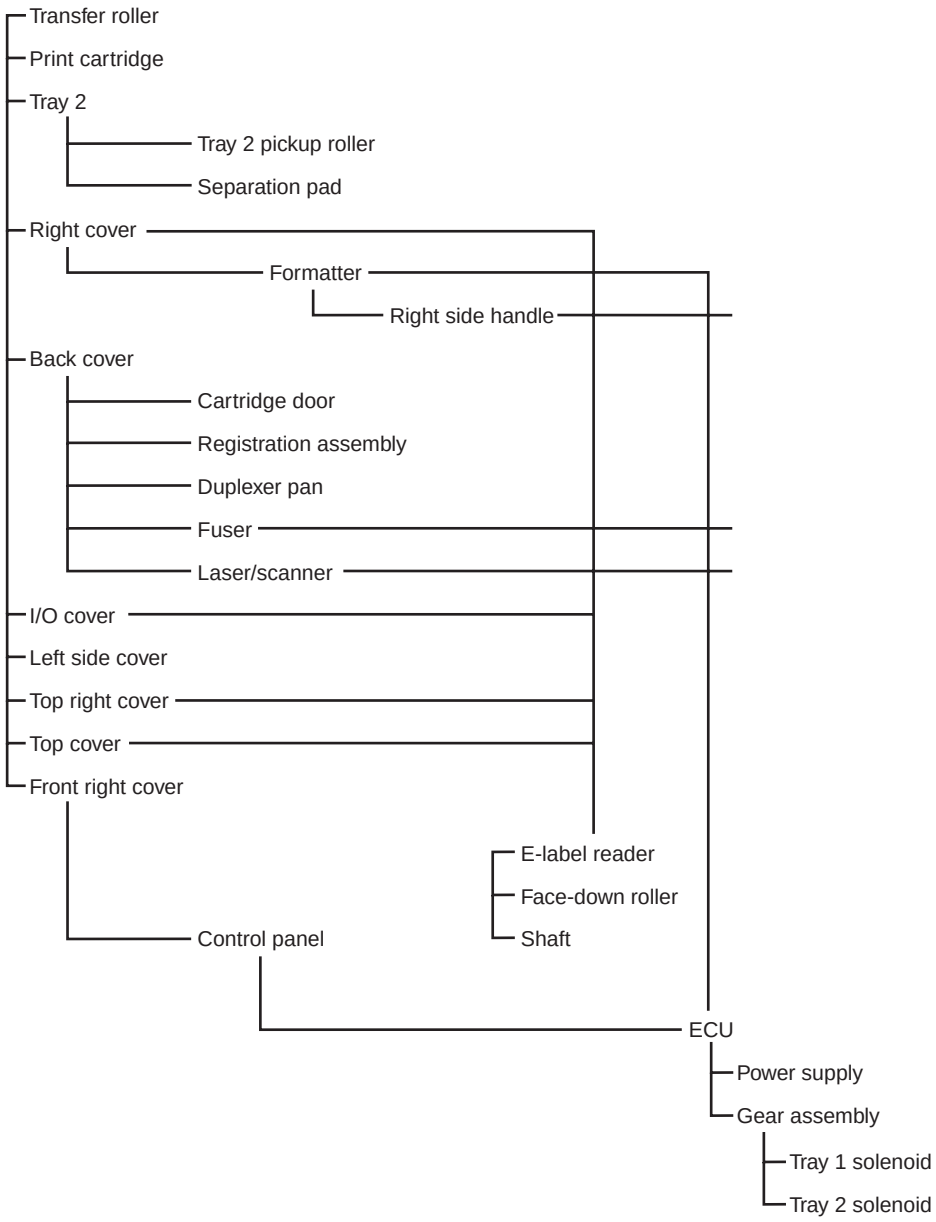

Figure 6-1. **Parts removal diagram**

Covers

Not all covers have to be removed to get to various FRUs. See Parts removal order if you are unsure about which covers must be removed.

Right-side cover

1. Slide the right-side cover toward the back of the printer to disengage it from the front, right cover and the right-side handle.

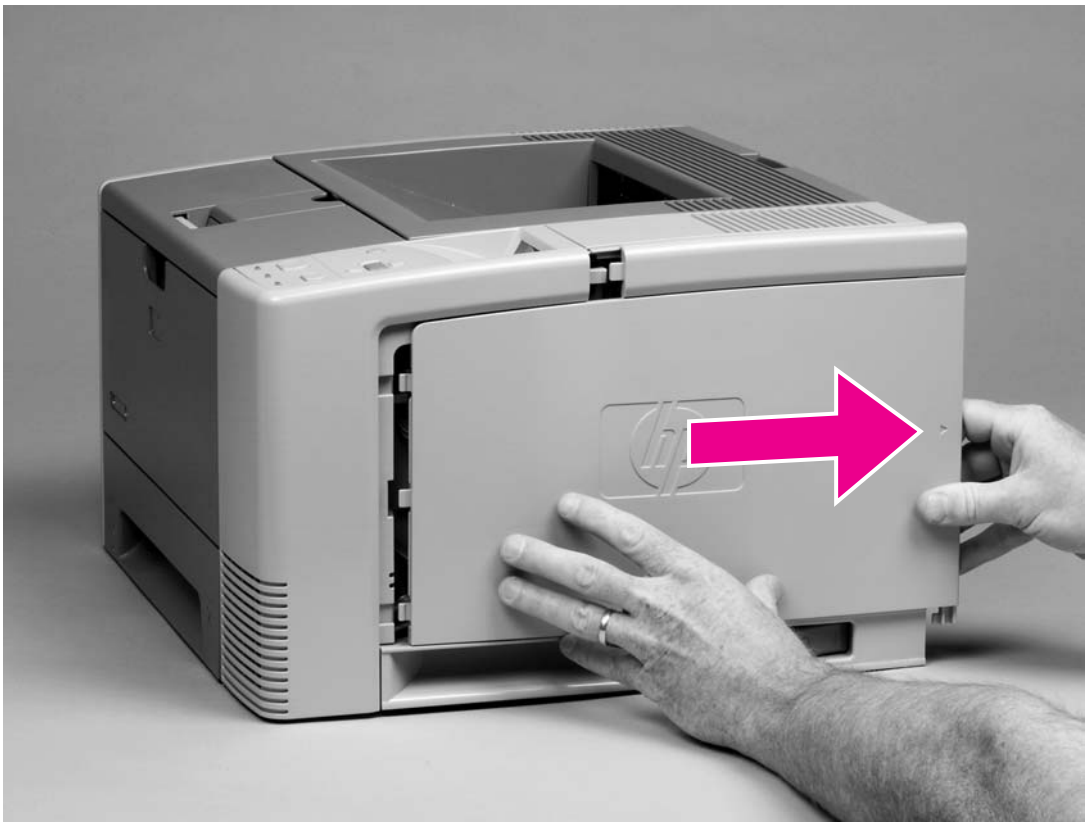

Figure 6-2. Removing the right-side cover

2. Lift the cover away from the printer.

Back cover

1. Open the face-up delivery door all the way, and then press the door down to disengage two door-stops (callout 1).
2. Remove two screws (callout 2).

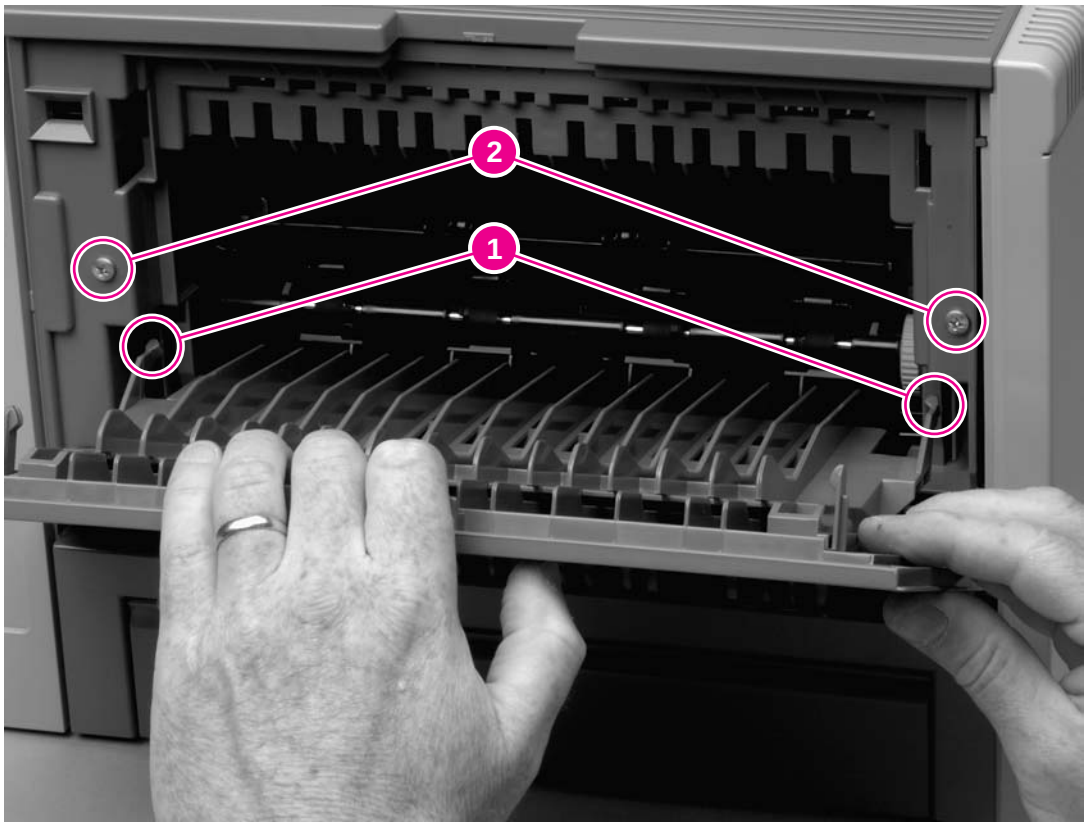

Figure 6-3. **Removing the back cover (1 of 3)**

3. Close the face-up delivery door, and then tip the printer so that it rests on its front.

4. Open the "legal-size" cover (callout 3), and then disengage one tab (callout 4).

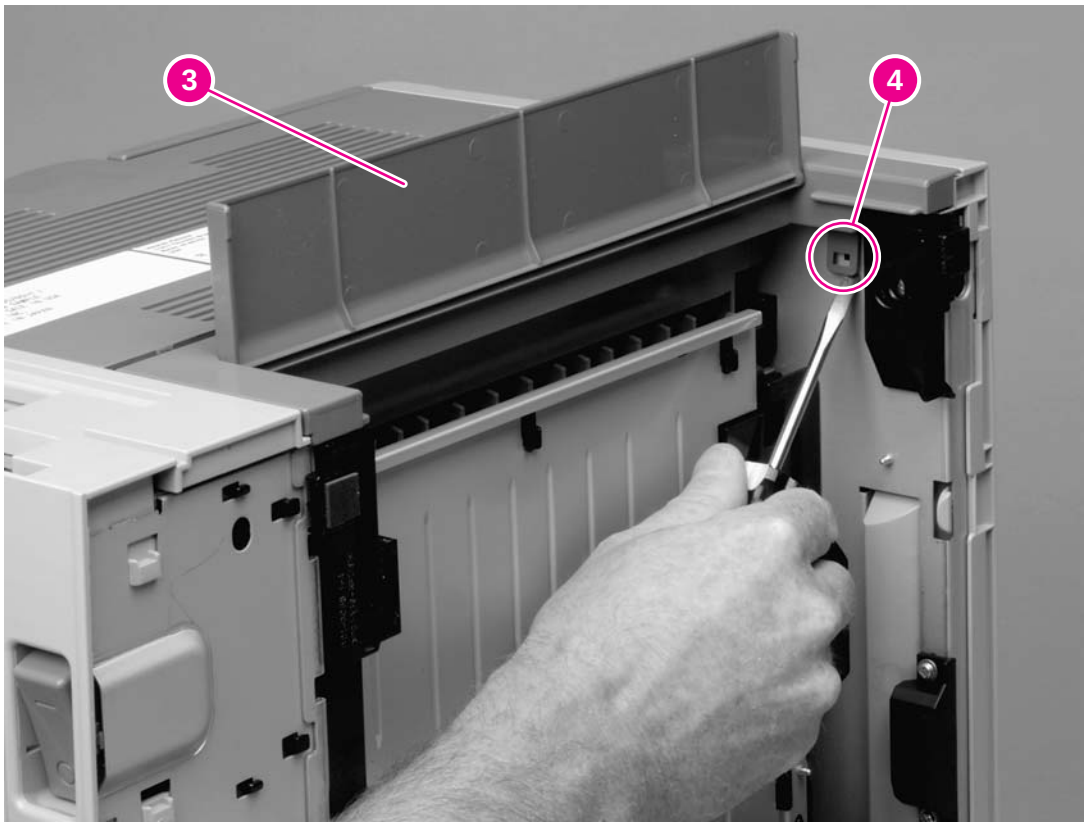

Figure 6-4. **Removing the back cover (2 of 3)**

5. Lift the bottom of the cover first, and then lift the cover away from the printer.

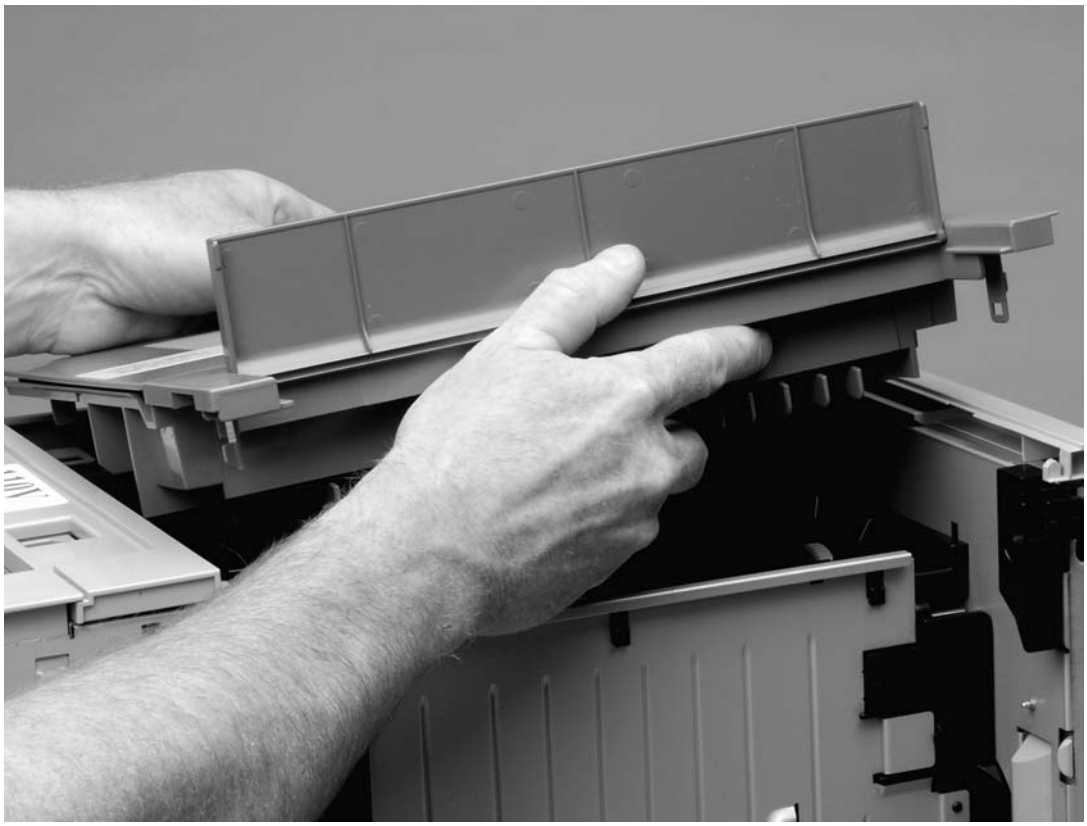

Figure 6-5. **Removing the back cover (3 of 3)**

6. Tip the printer back so that it rests on its feet.

I/O cover

1. Rotate the I/O cover to clear tabs at the right side of the cover.

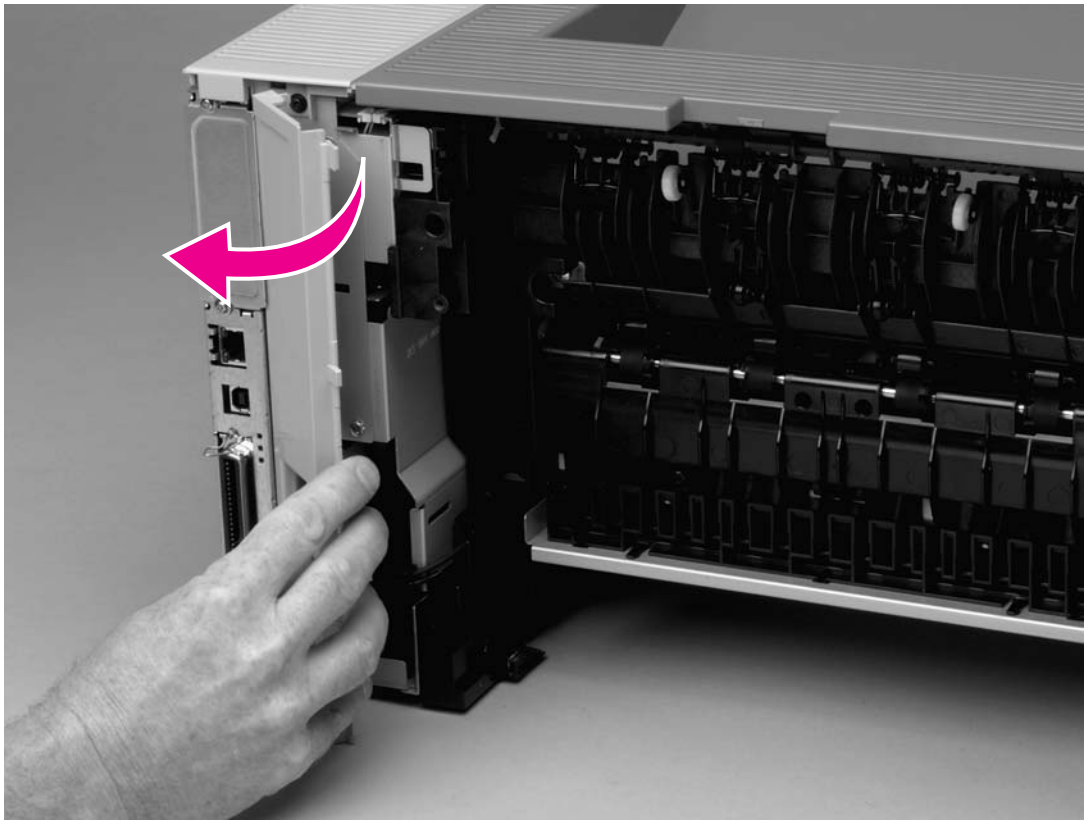

Figure 6-6. **Removing the I/O cover**

2. Lift the cover off of the printer.

Left-side cover

1. Remove two screws (callout 1).

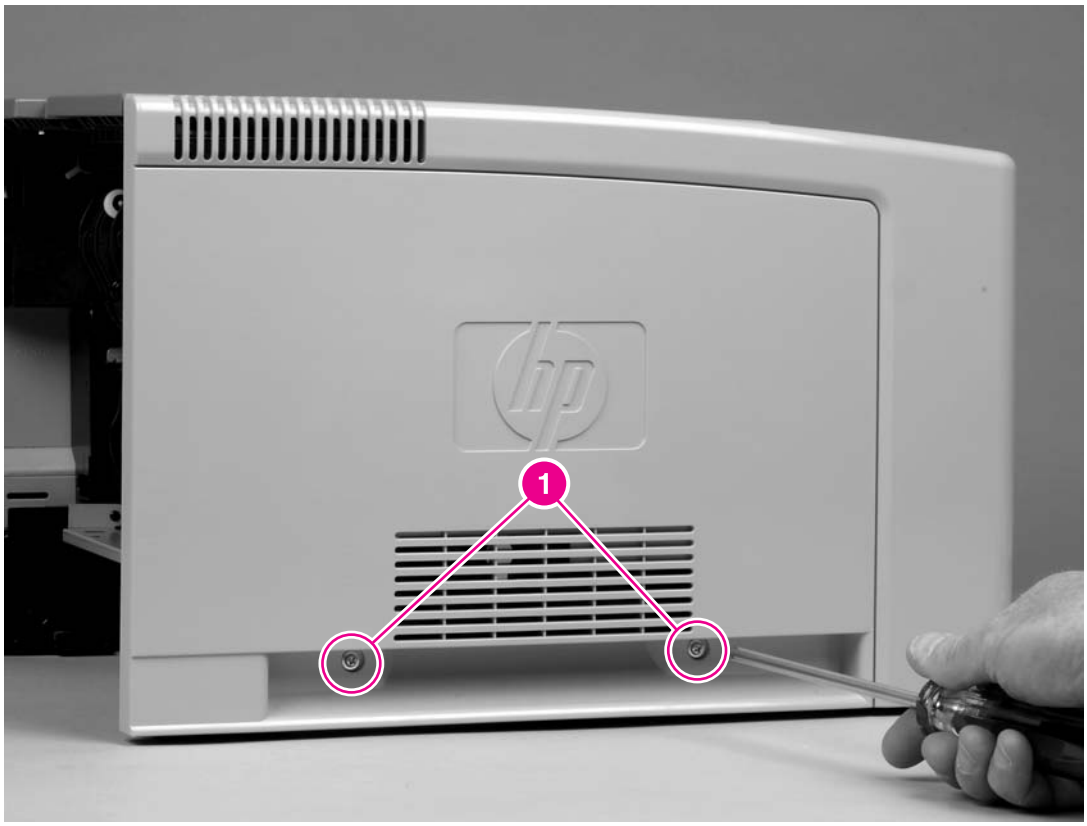

Figure 6-7. **Removing the left-side cover (1 of 2)**

2. Open the cartridge door.

3. Release one tab (callout 2) at the back of the printer by pressing the tab through a hole in the chassis, and then rotate the cover away from the printer at the back of the printer.

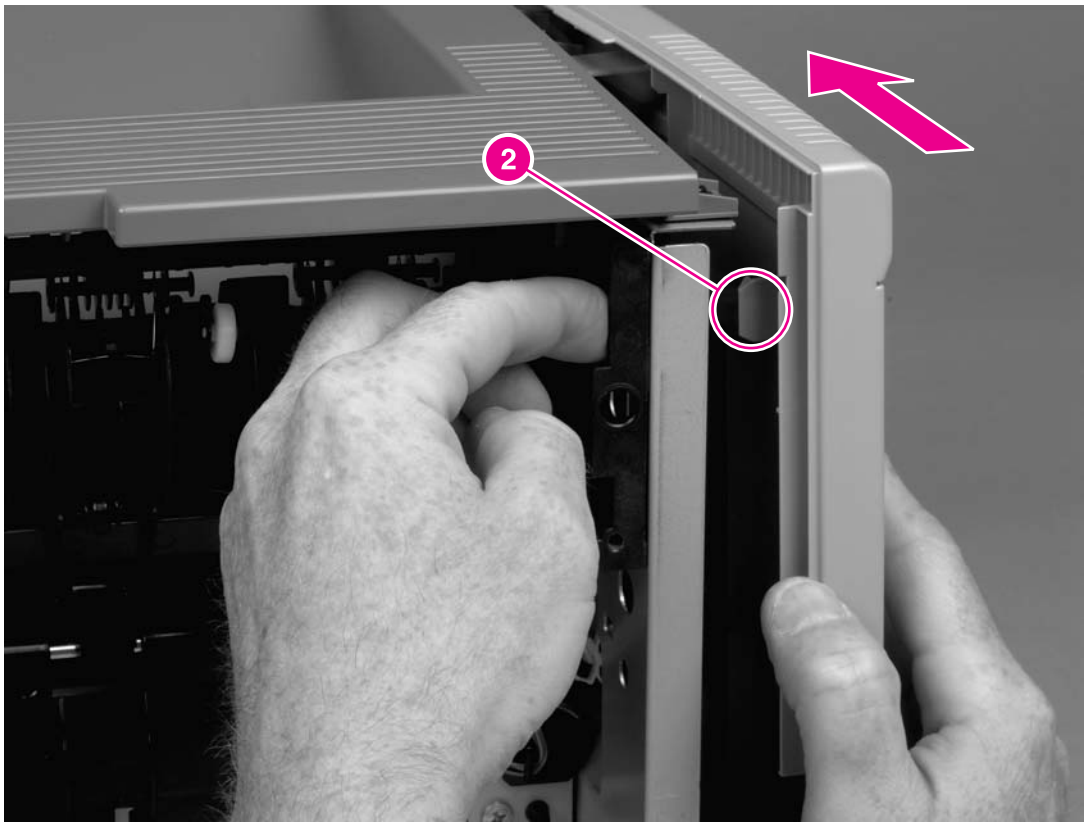

Figure 6-8. **Removing the left-side cover (2 of 2)**

4. Slide the cover toward the front of the printer to clear tabs at the front, and then lift the cover away from the printer.

Top, right cover

1. Remove one screw (callout 1) at the back of the printer.

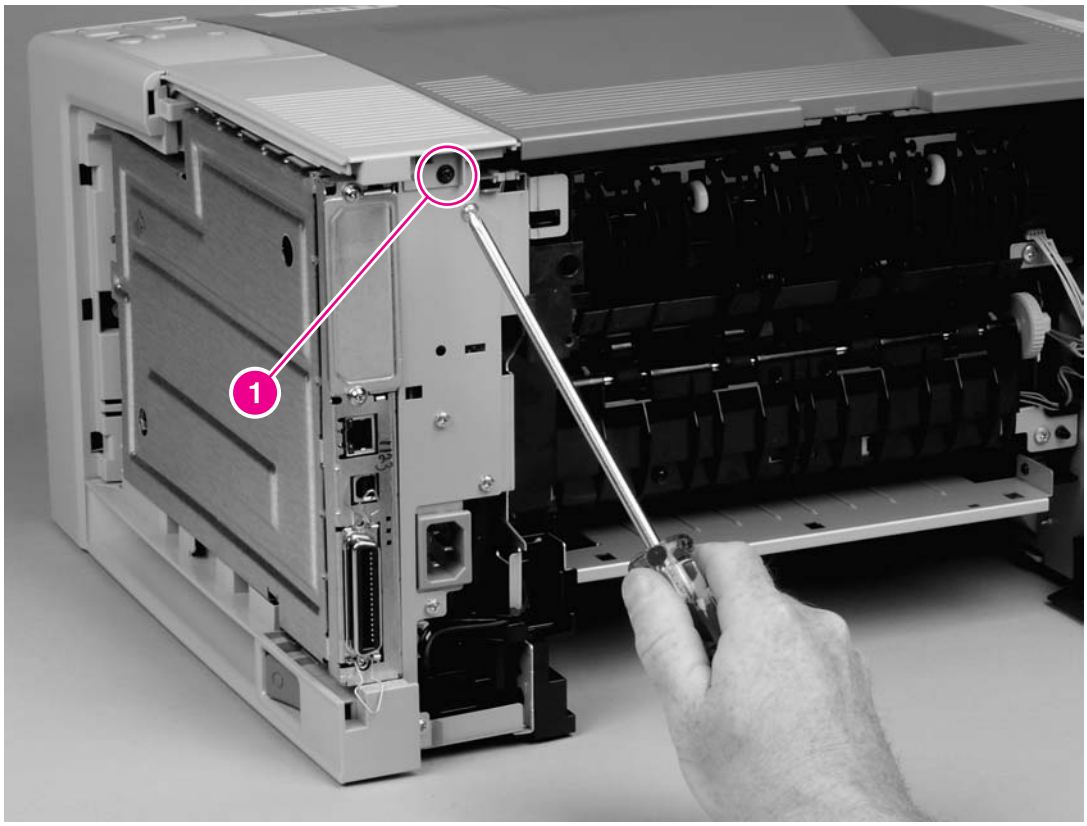

Figure 6-9. **Removing the top, right cover**

2. Lift the cover off of the printer.

Top cover

1. Remove four screws (callout 1).
2. Lift the cover at the back of the printer, and then slide the cover toward the front of the printer to clear the tabs (callout 2) at the front of the cover.

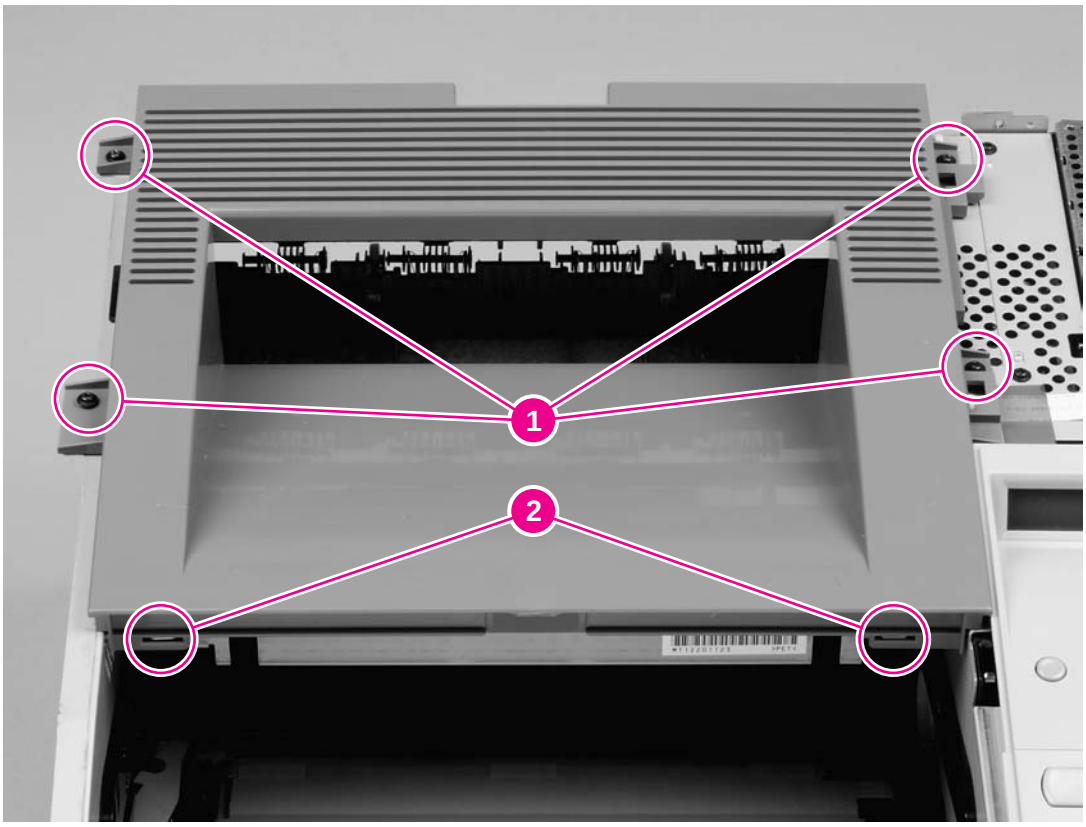

Figure 6-10. **Removing the top cover**

3. Lift the cover off of the printer.

Front, right cover

1. Remove two screws (callout 1).

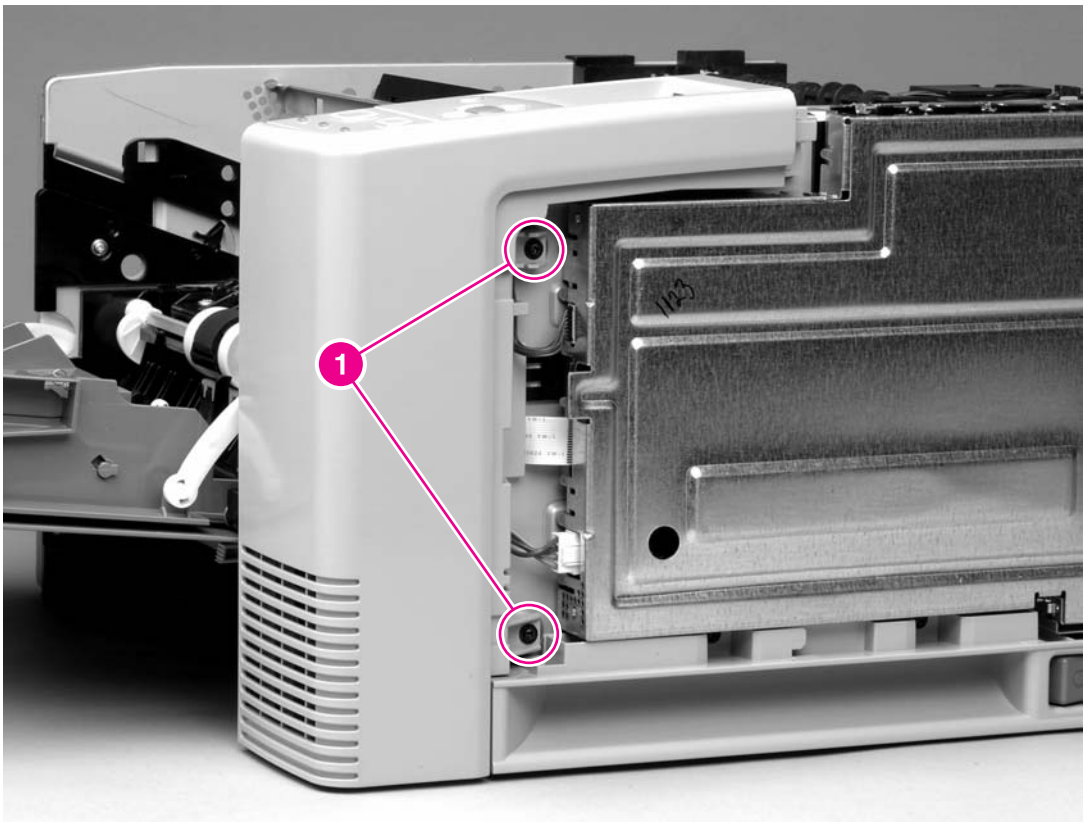

Figure 6-11. **Removing the front, right cover (1 of 2)**

2. Release one tab (callout 2) at the back of the cover, and then rotate the cover to clear two tabs (callout 3) at the front of the printer.

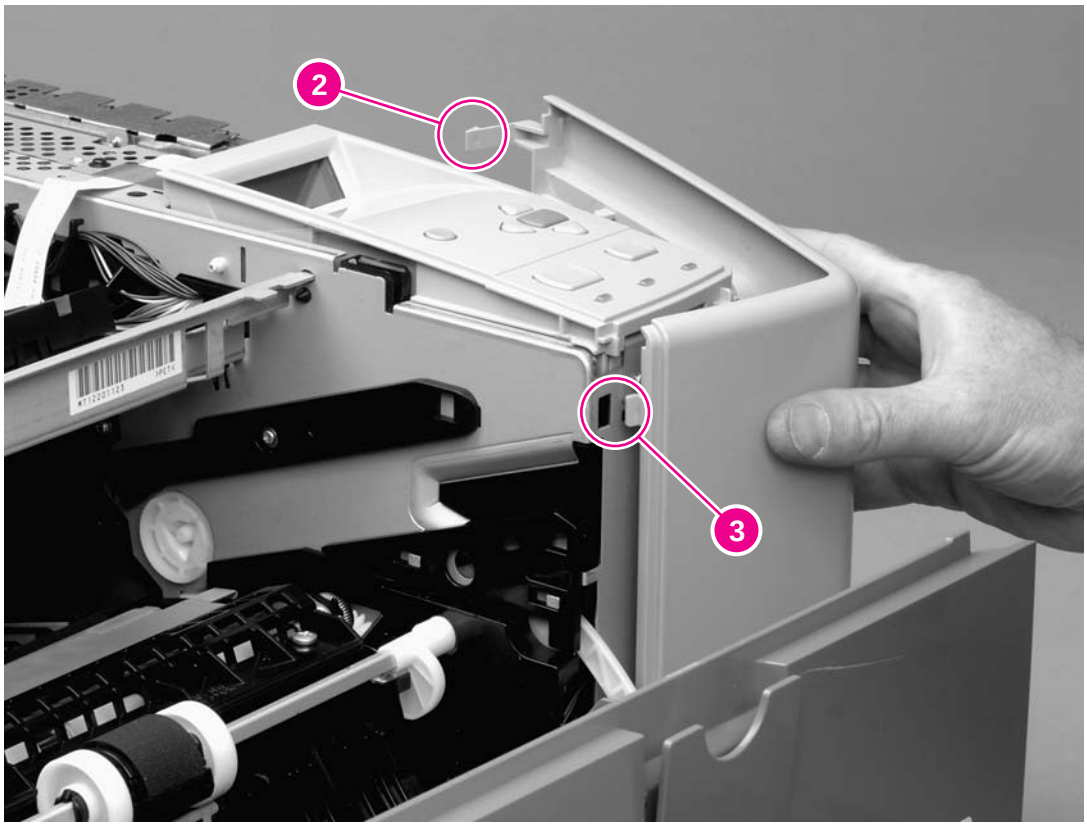

Figure 6-12. **Removing the front, right cover (2 of 2)**

3. Lift the cover away from the printer.

Control panel

1. Remove all of the covers (see Covers).
2. Disconnect one cable (callout 1).
3. Remove two screws (callout 2).

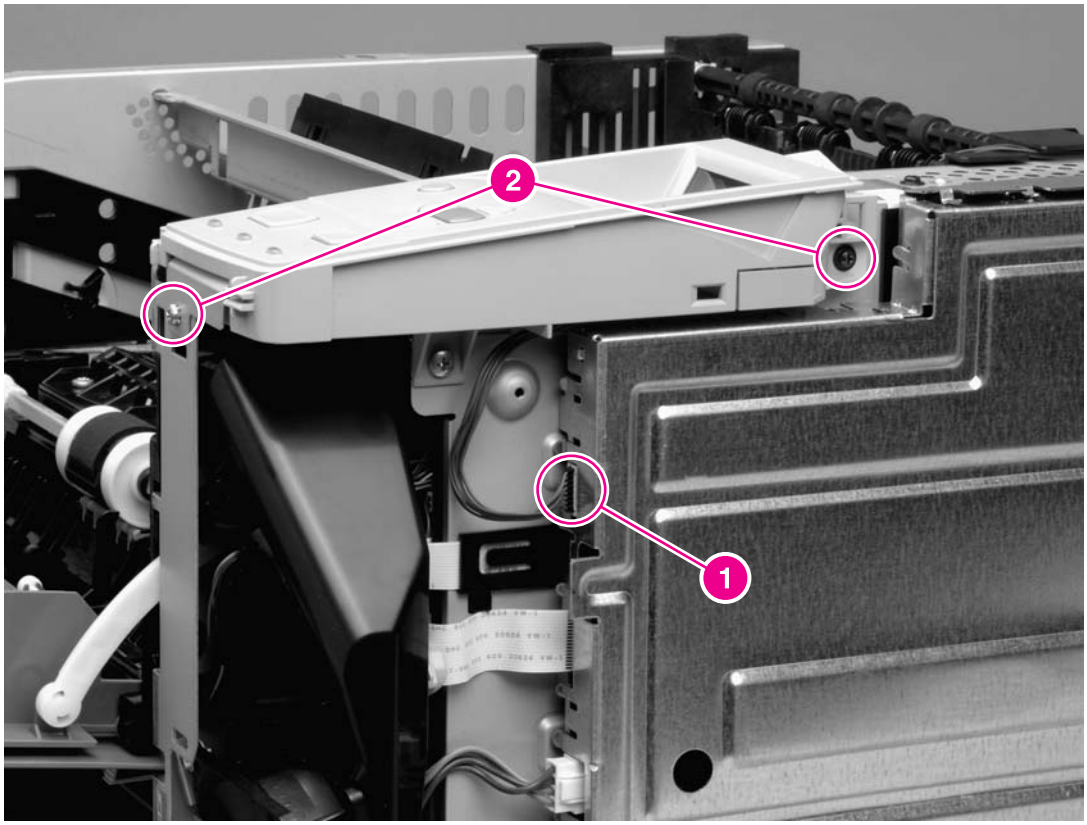

Figure 6-13. **Removing the control panel**

4. Lift the control panel off of the printer.

Reinstallation tip

To make sure that the control panel is reinstalled correctly, use the locator pin (callout 1) and place the sheet metal front of the control panel assembly (callout 2) **in front** of the printer chassis.

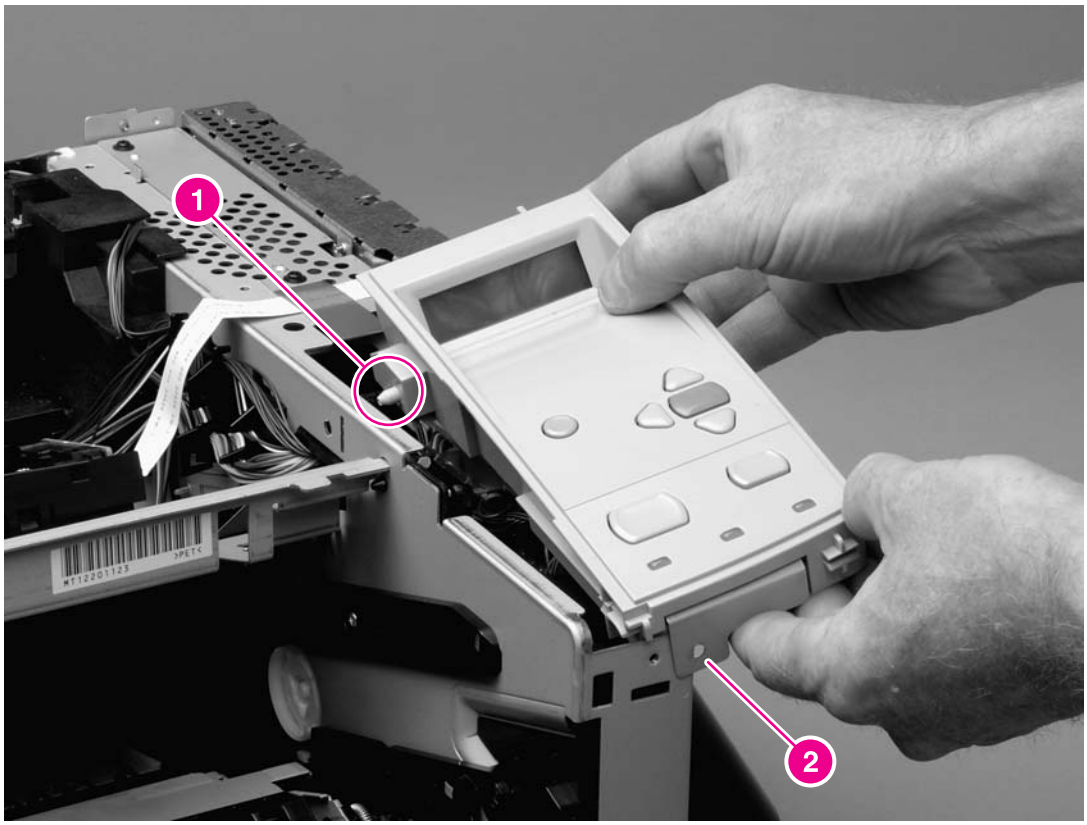

Figure 6-14. **Reinstalling the control panel**

Formatter

1. Remove the right-side cover (see Right-side cover).
2. Open the formatter cover, and then lift the cover off of the hinges (callout 1) at the back of the cover.

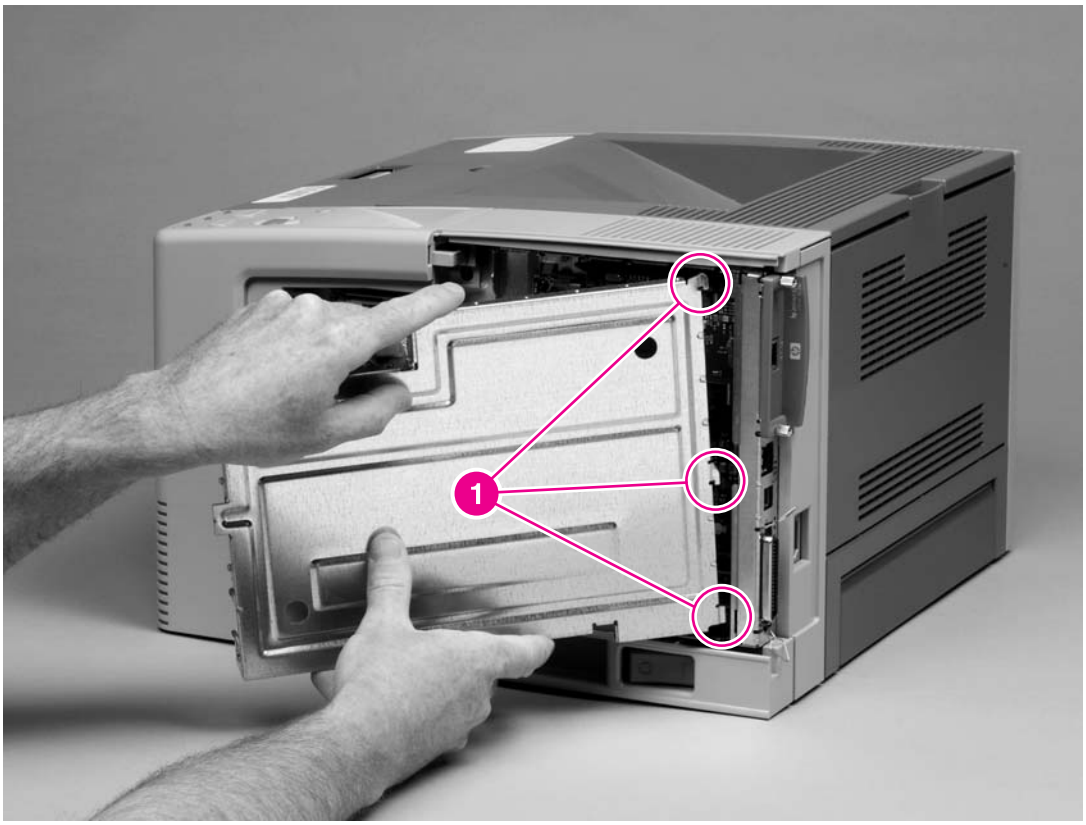

Figure 6-15. **Removing the formatter (1 of 4)**

3. Disconnect three cables (callout 2).

4. Remove two screws (callout 3).

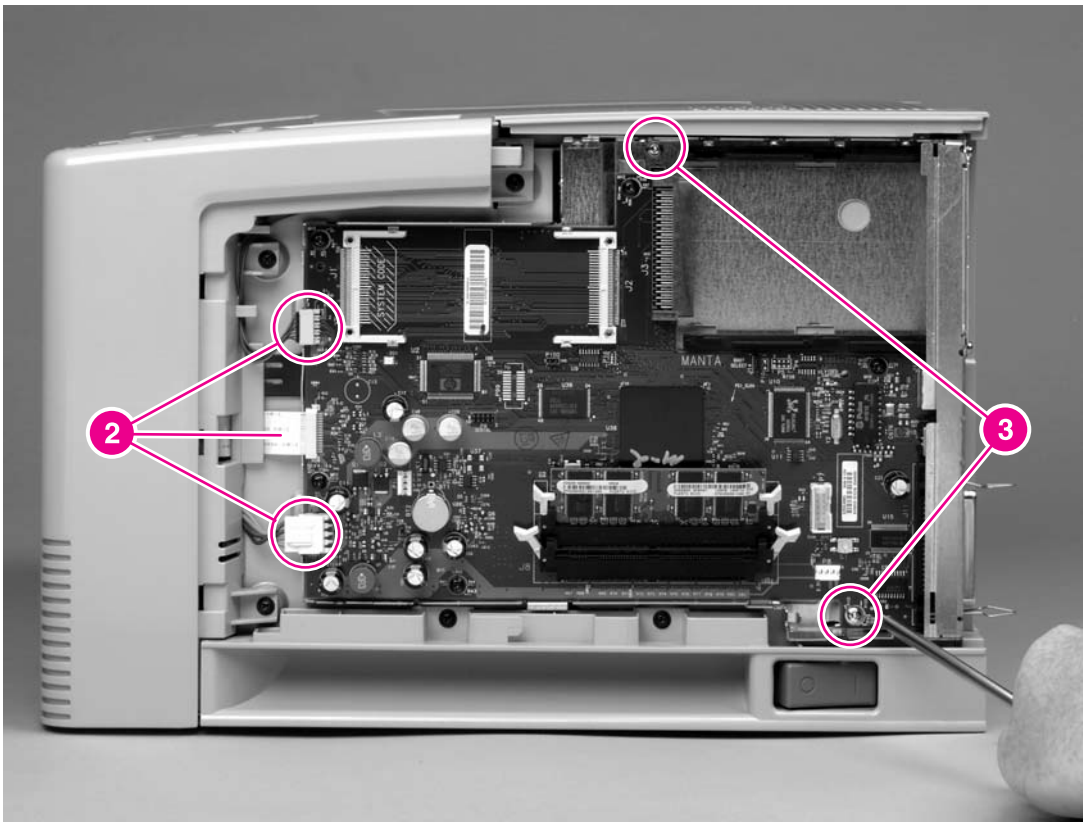

Figure 6-16. **Removing the formatter (2 of 4)**

5. Rotate the formatter slightly at the back of the printer, and then slide the formatter toward the back of the printer to clear two tabs (callout 4) at the front of the formatter.

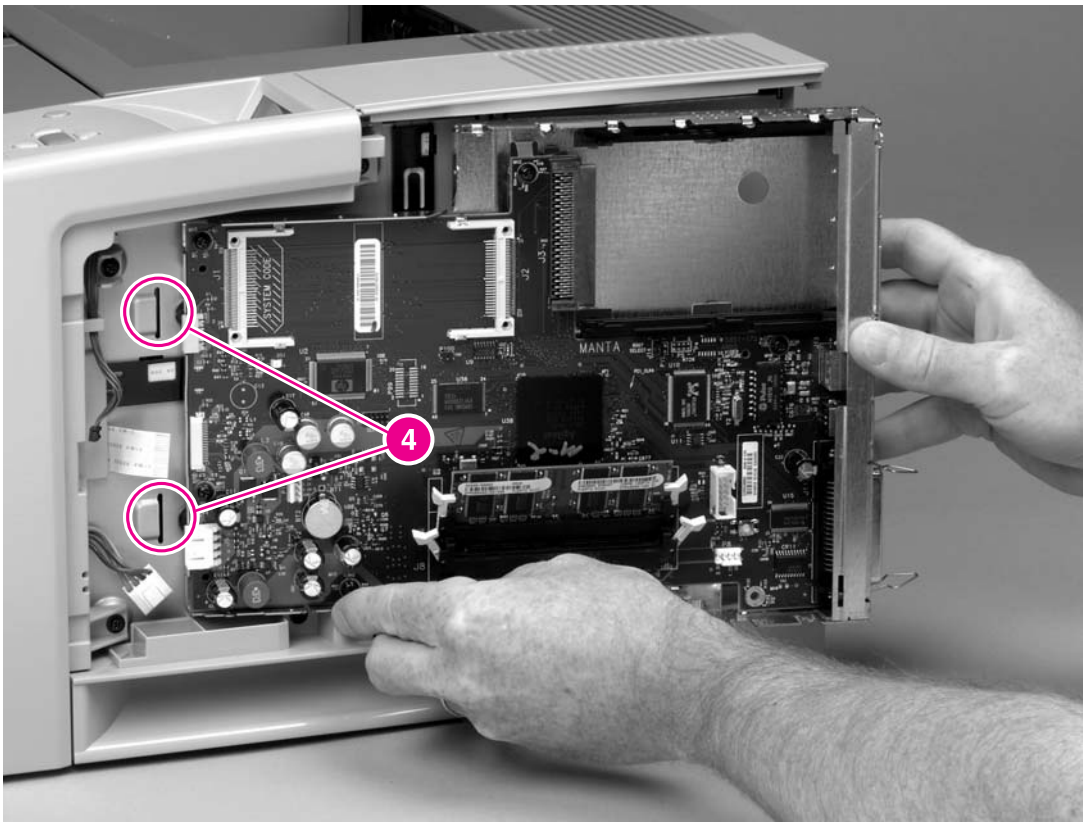

Figure 6-17. **Removing the formatter (3 of 4)**

6. Remove five screws (callout 5), and then lift the formatter off of the formatter plate.

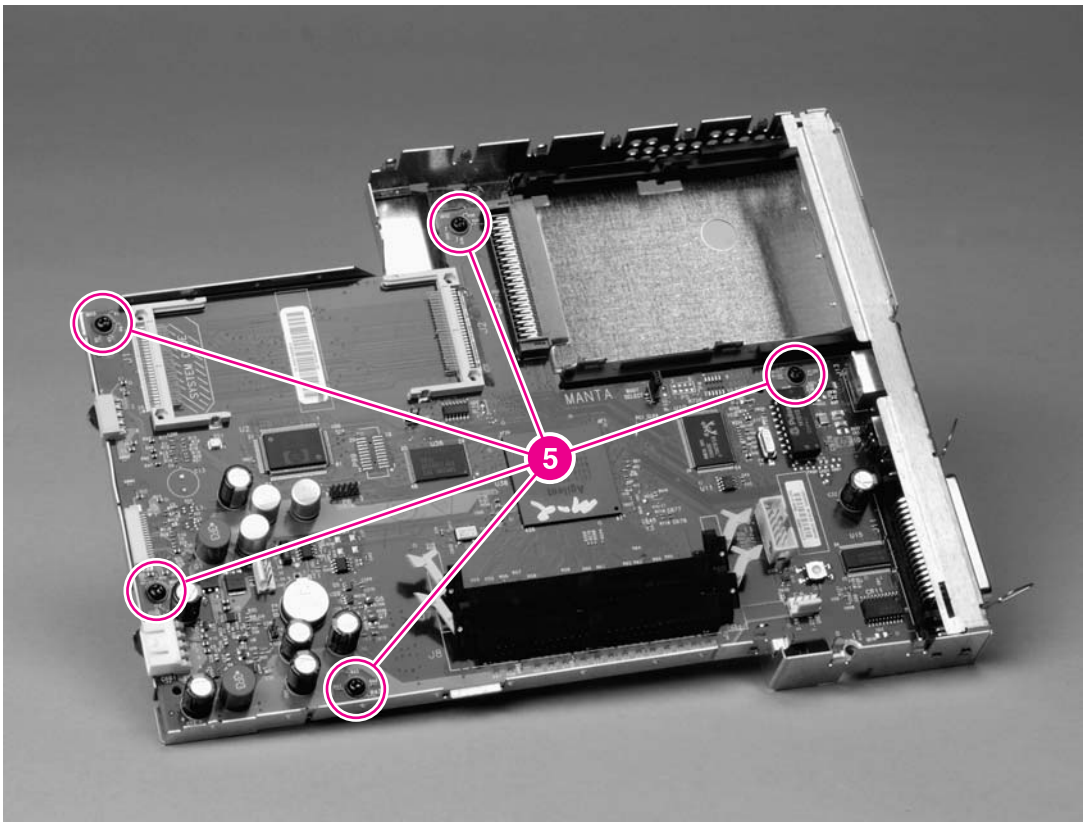

Figure 6-18. **Removing the formatter (4 of 4)**

Fuser

1. Remove the back cover (see Back cover) and the I/O cover (see I/O cover).
2. Remove the fuser-cable cover by releasing one tab (callout 1) on the cover, and then rotating the back of the cover toward the center of the printer.

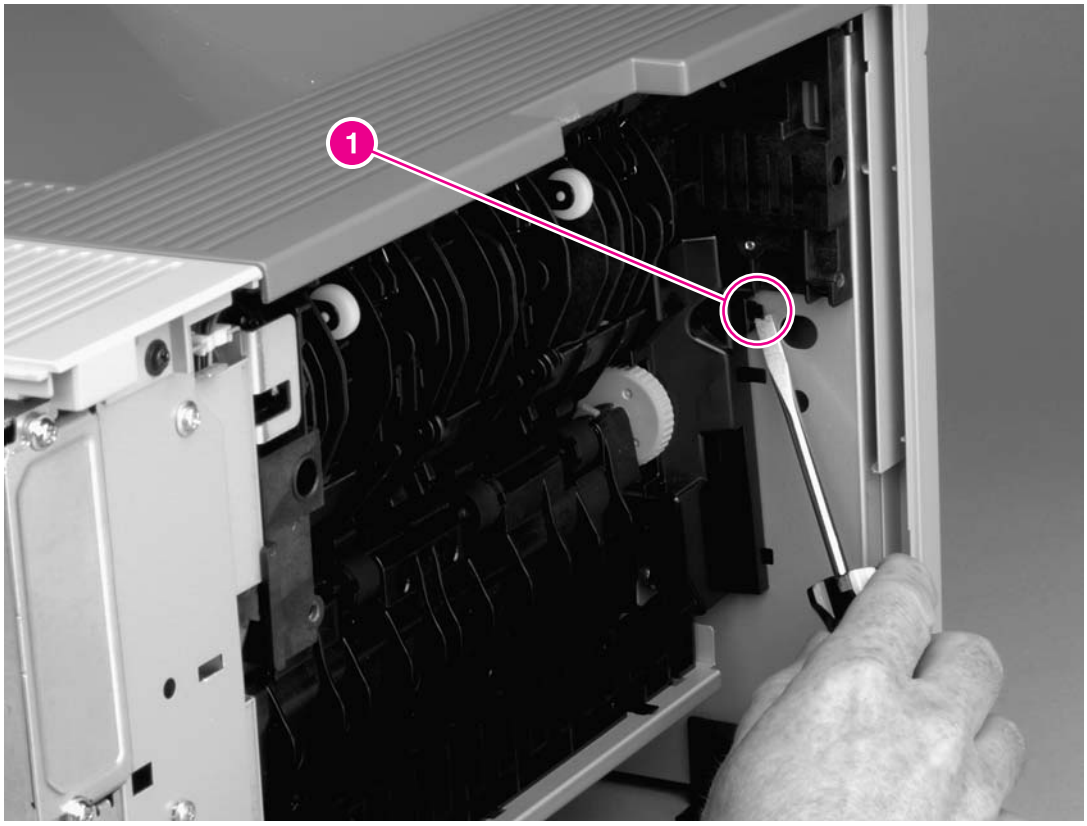

Figure 6-19. **Removing the fuser (1 of 5)**

3. Remove the duplexer inlet guide by releasing two tabs (callout 2) on the guide, and then sliding the guide toward the back of the printer.

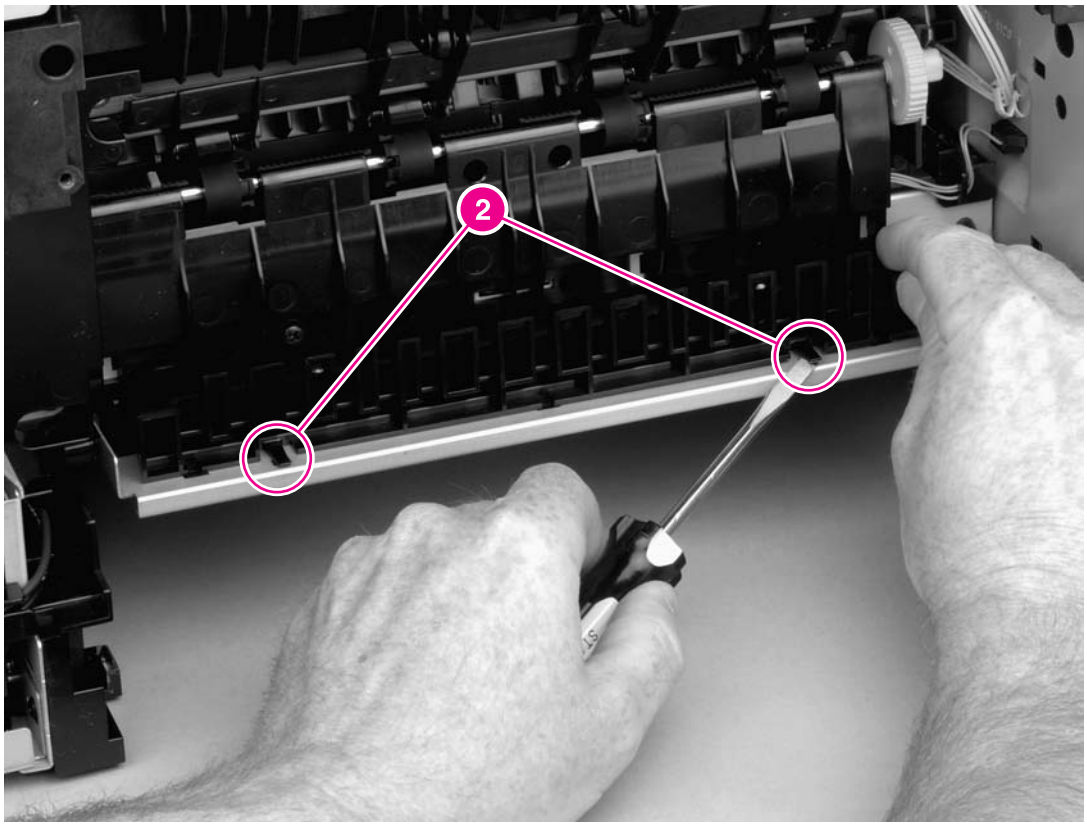

Figure 6-20. **Removing the fuser (2 of 5)**

Reinstallation tip

Make sure that both tabs snap back into place when reinstalling the duplexer inlet guide.

4. Disconnect two cables at the left, inside, of the printer (callout 3).

5. Disconnect the fuser cable at the right side of the printer (callout 4).

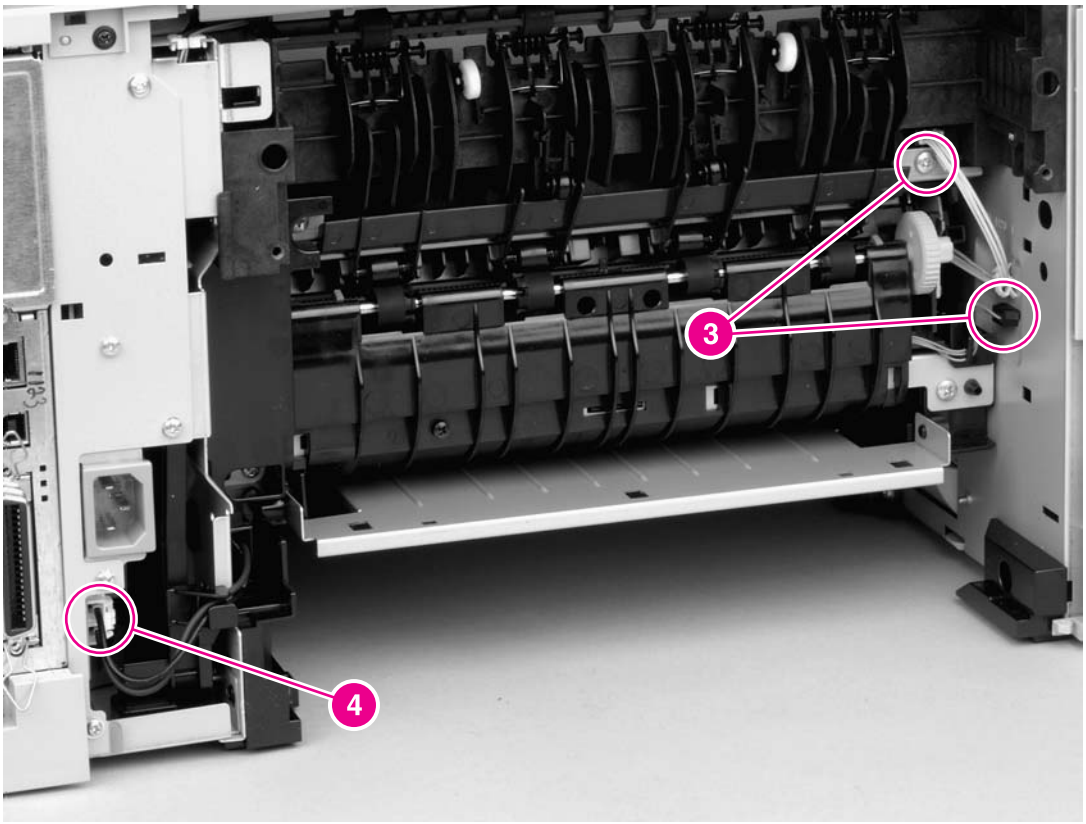

Figure 6-21. **Removing the fuser (3 of 5)**

6. Remove four screws (callout 5).

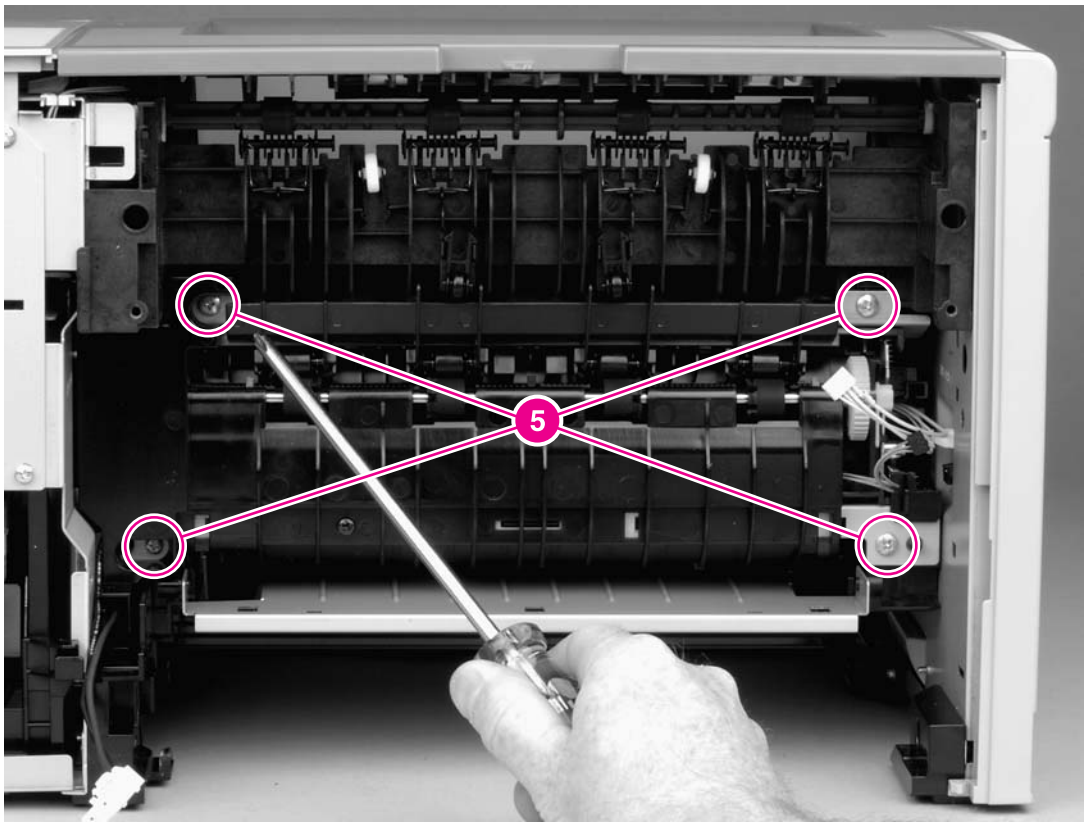

Figure 6-22. **Removing the fuser (4 of 5)**

7. Tilt the fuser slightly toward the back of the printer, and then slide the fuser out of the back of the printer.

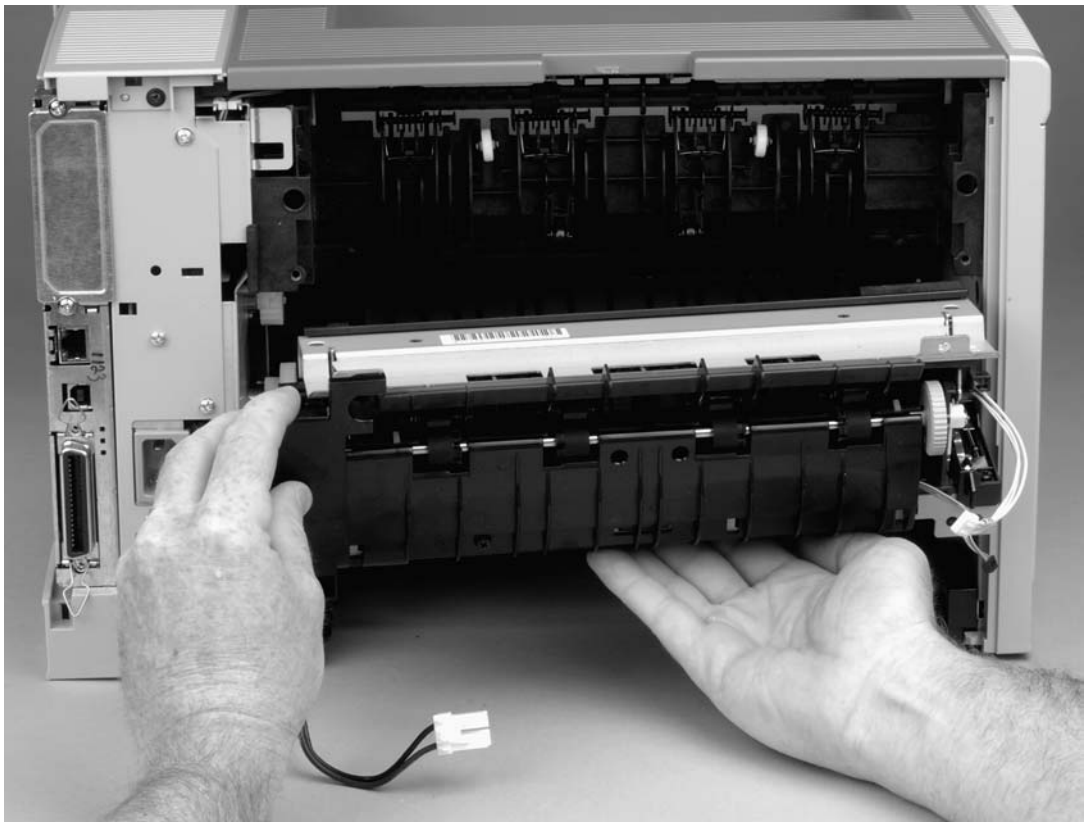

Figure 6-23. **Removing the fuser (5 of 5)**

1. Remove the back cover (see Back cover), the I/O cover (see I/O cover), the left-side cover (see Left-side cover), the top, right cover (see Top, right cover), and the top cover (see Top cover).
2. Release one tab (callout 1) on the air duct, and then lift the air duct out of the printer.

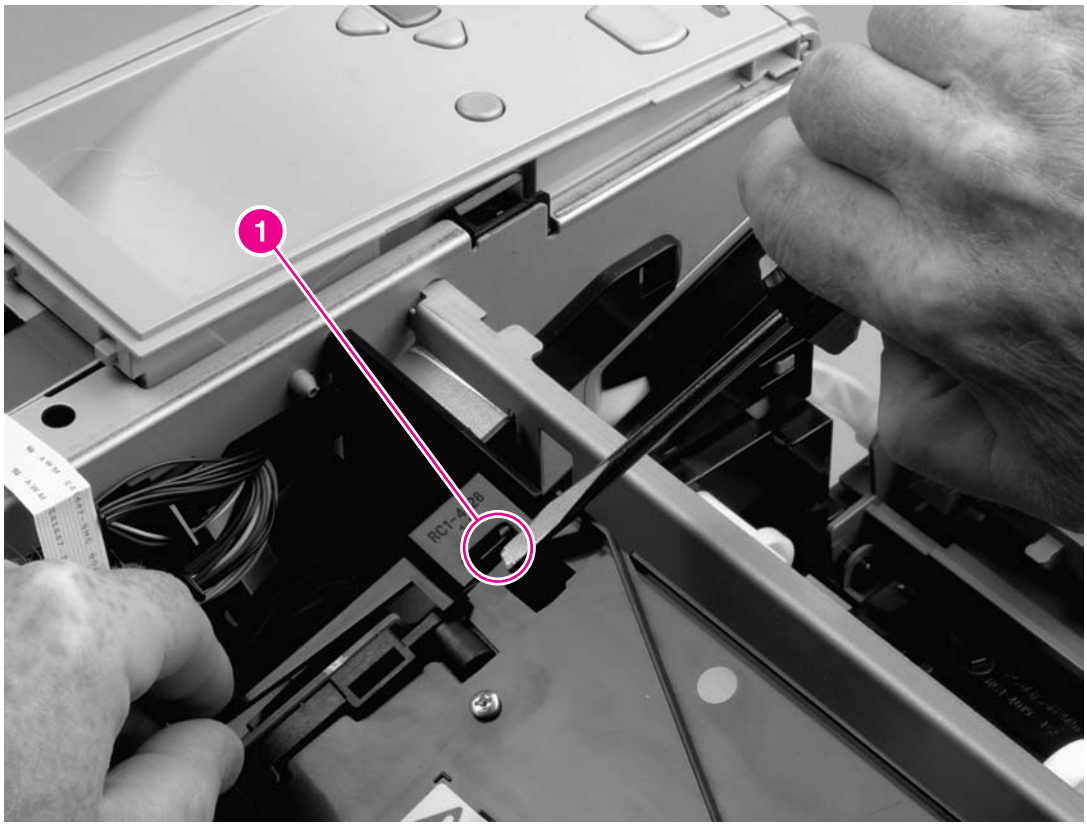

Figure 6-24. **Removing the laser/scanner (1 of 3)**

3. Disconnect two cables (callout 2).

4. Remove four screws (callout 3).

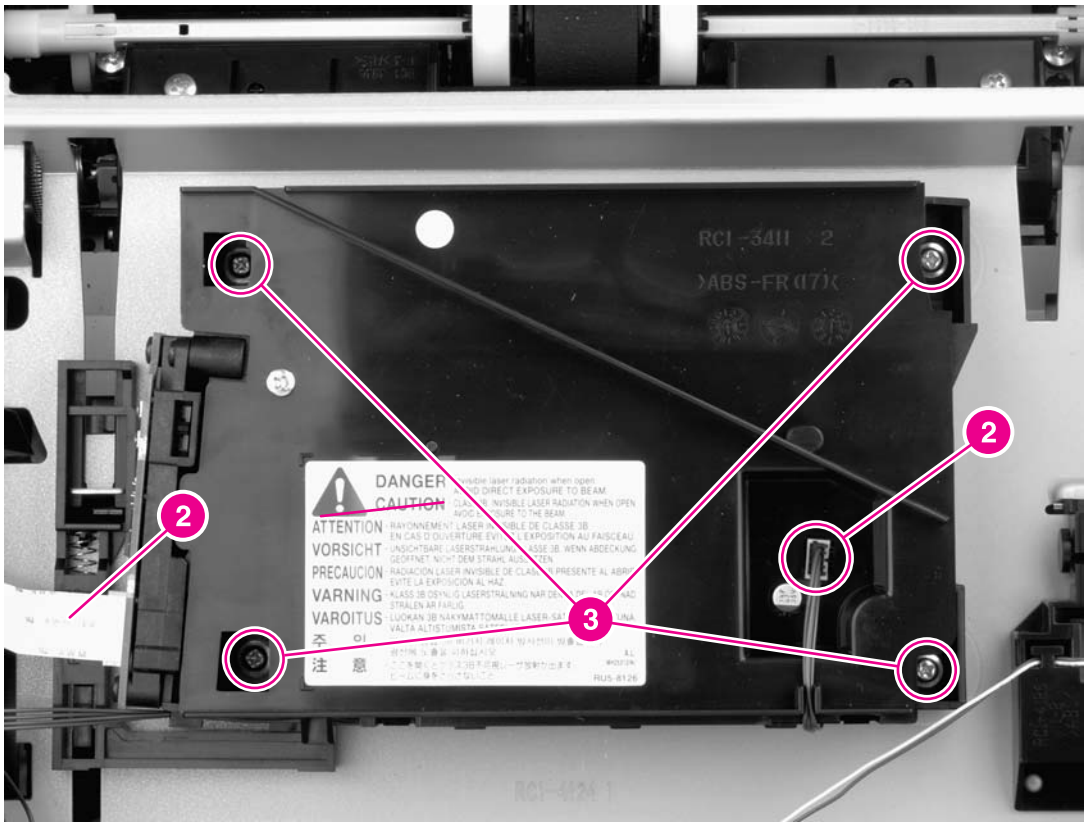

Figure 6-25. **Removing the laser/scanner (2 of 3)**

5. Lift the laser/scanner out of the printer.

6. To remove the laser/scanner PCA, remove two screws (callout 4), and then lift the PCA off of the laser/scanner.

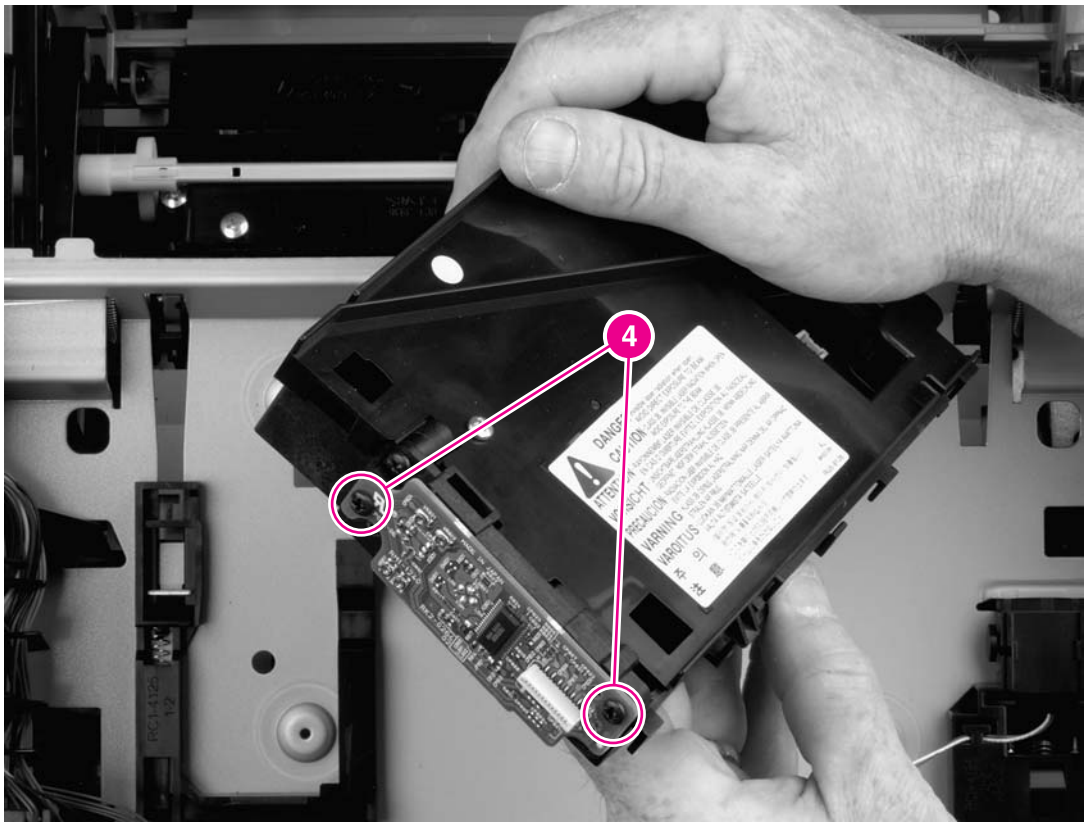

Figure 6-26. **Removing the laser/scanner (3 of 3)**

Right-side handle

1. Remove the right-side cover (see Right-side cover).
2. Remove the formatter (see Formatter).
3. Remove two screws (callout 1).

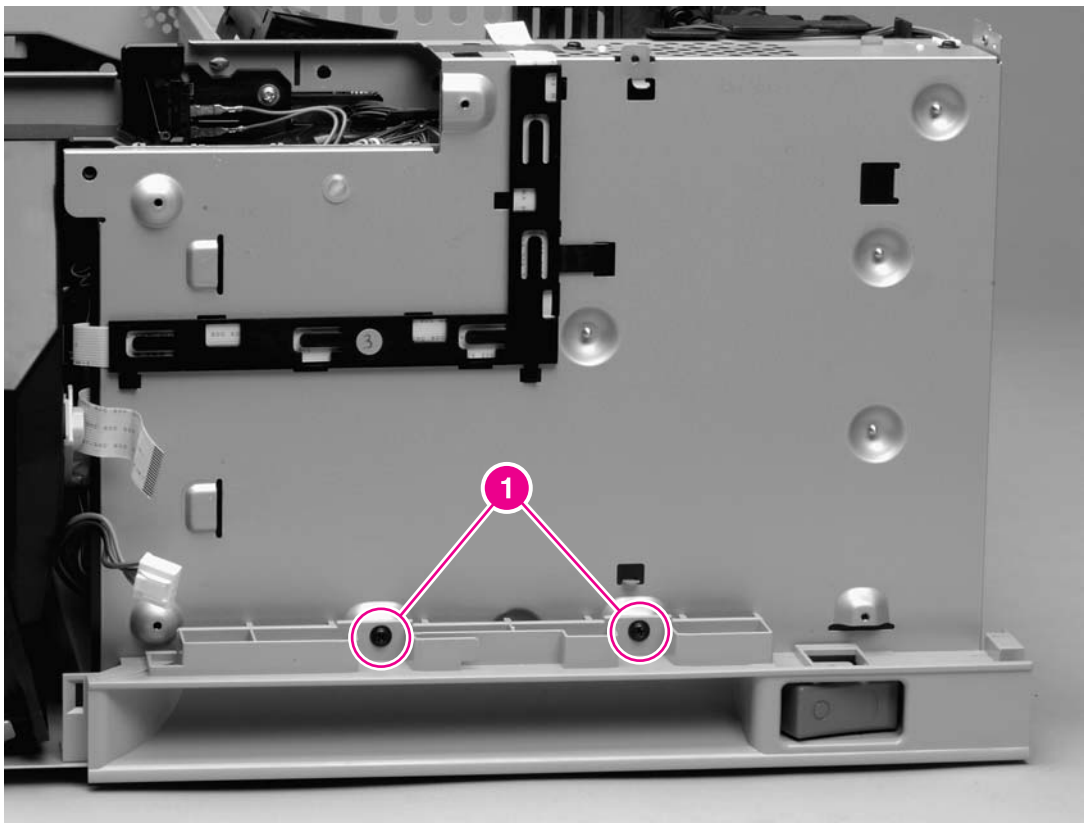

Figure 6-27. **Removing the right-side handle (1 of 2)**

4. Slide the handle toward the back of the printer until the power-switch (callout 2) is adjacent to the hole in the printer chassis.

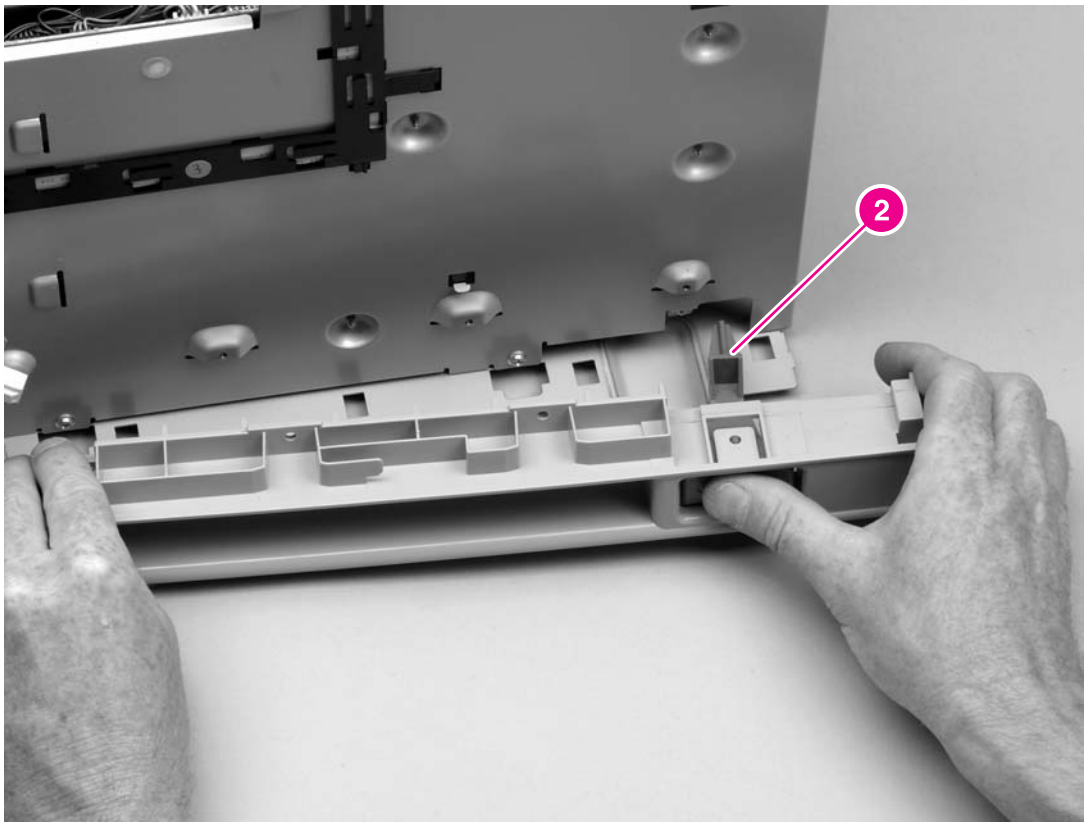

Figure 6-28. **Removing the right-side handle (2 of 2)**

5. Rotate the handle so that the power-switch clears the hole, and then lift the handle away from the printer.

NOTE You might find it helpful to turn the switch to the on and off positions as you remove the handle.

ECU

1. Remove all of the covers (see Covers).
2. Remove the control panel (see Control panel).
3. Remove the formatter (see Formatter).
4. Remove the right-side handle (see Right-side handle).
5. Disconnect the fuser cable (see callout 4 in Figure 6-21. Removing the fuser (3 of 5)).
6. Squeeze the air duct to release two tabs (callout 1), and then lift the air duct out of the printer.

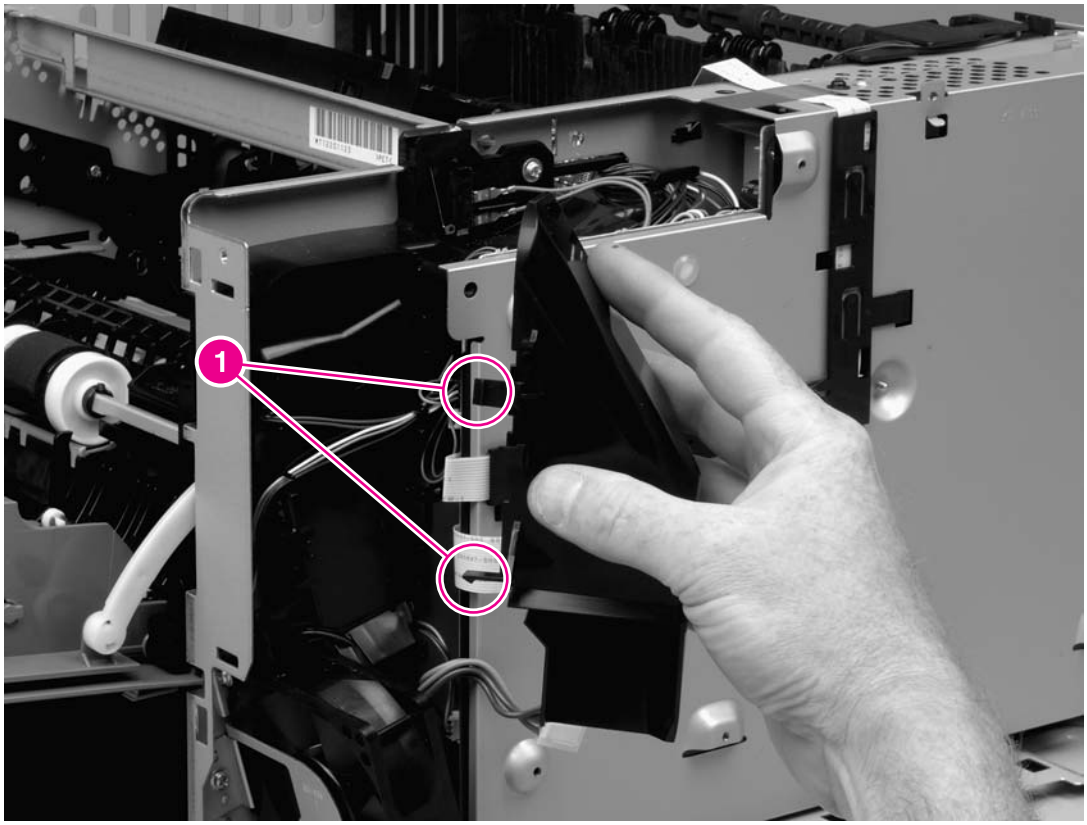

Figure 6-29. **Removing the ECU (1 of 6)**

7. Disconnect nine cables (callout 2): six cables at the top and three cables at the front of the ECU.

8. Lift the cartridge-door switch (callout 3) from its mounting.

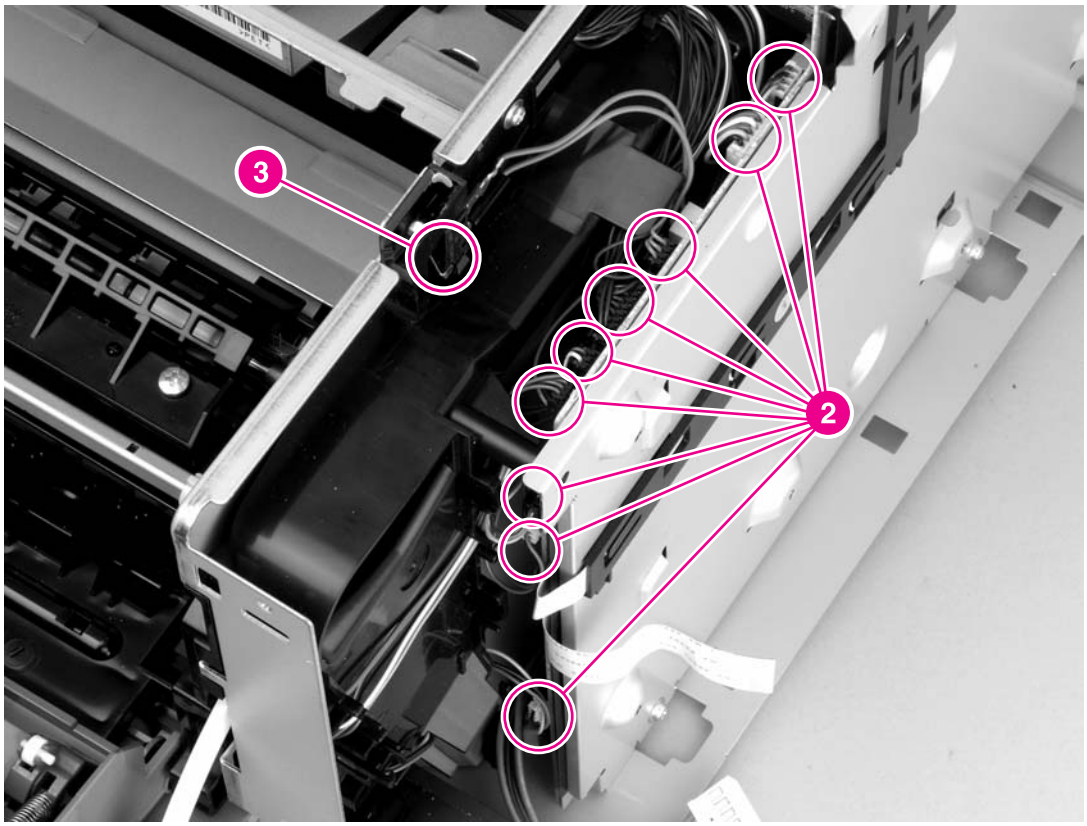

Figure 6-30. **Removing the ECU (2 of 6)**

9. Disconnect the laser/scanner cable (callout 4).

10. Remove four screws (callout 5): two screws on the top and two screws on the side, at the bottom, of the ECU pan.

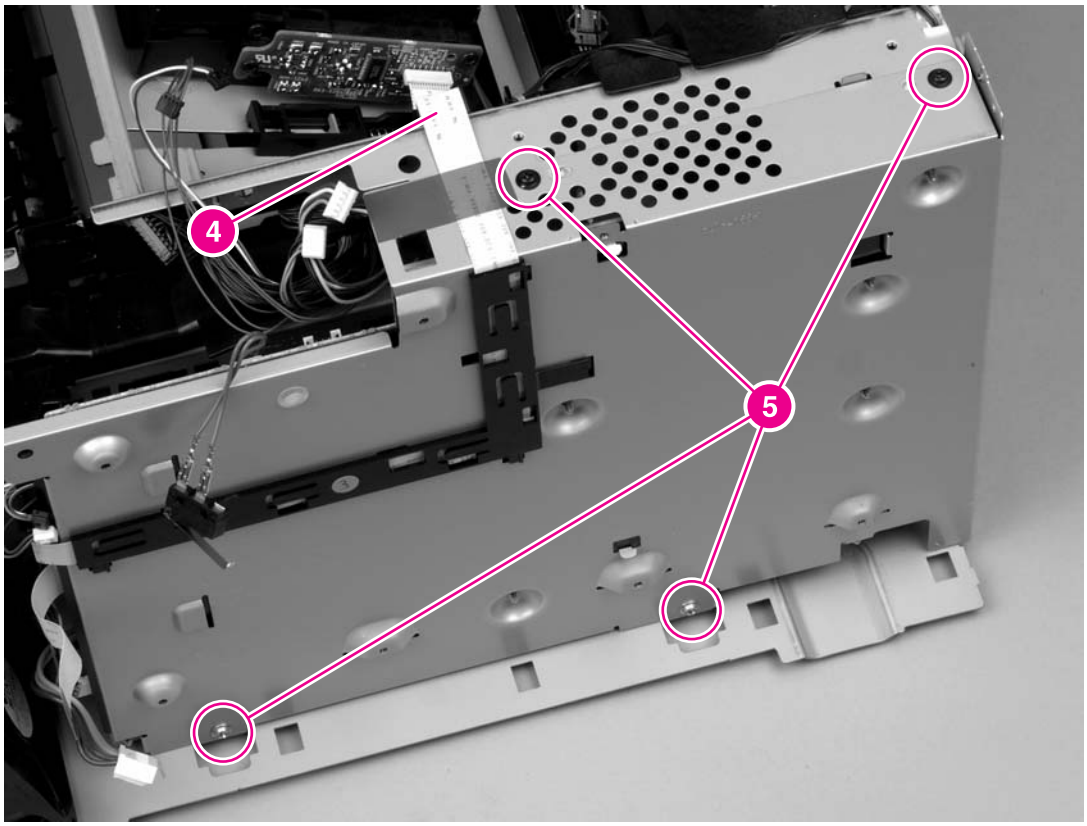

Figure 6-31. **Removing the ECU (3 of 6)**

11. Remove three screws (callout 6) from the back of the ECU pan.

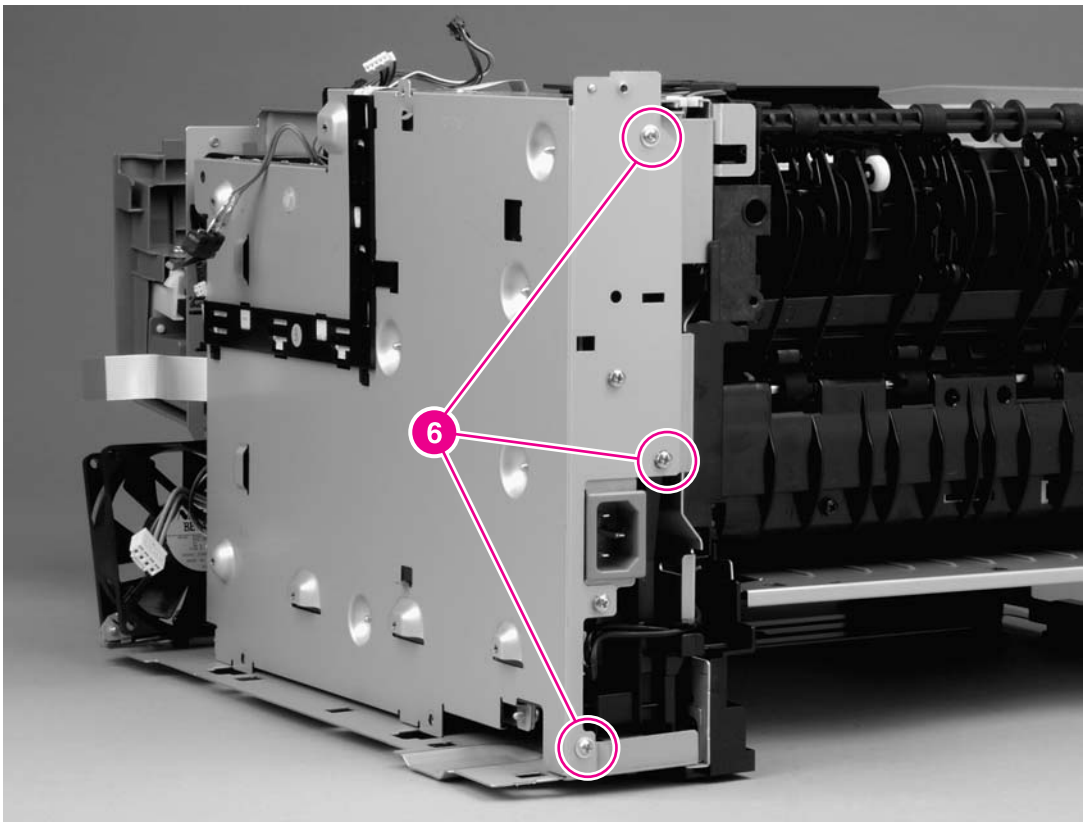

Figure 6-32. **Removing the ECU (4 of 6)**

12. Rotate the top of the ECU pan away from the printer, and then disconnect one flat, flexible cable (callout 7).

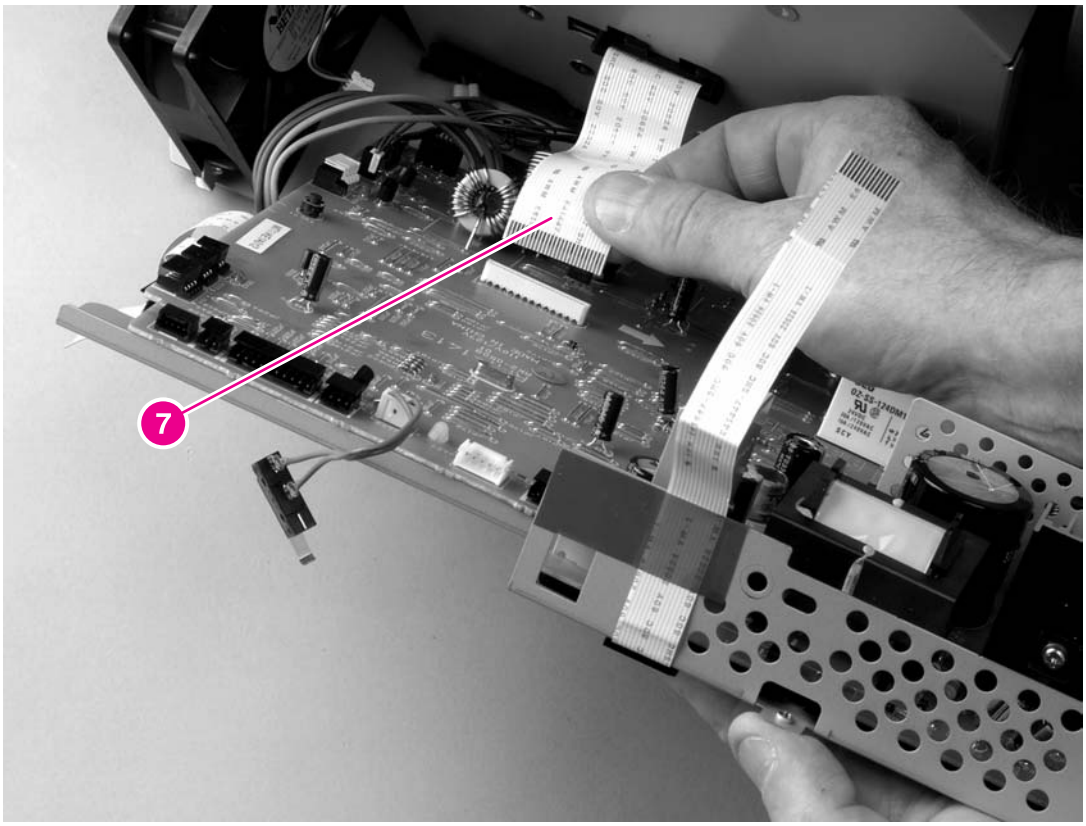

Figure 6-33. **Removing the ECU (5 of 6)**

13. Lay the ECU pan down on the work surface, and then disconnect three cables (callout 8).

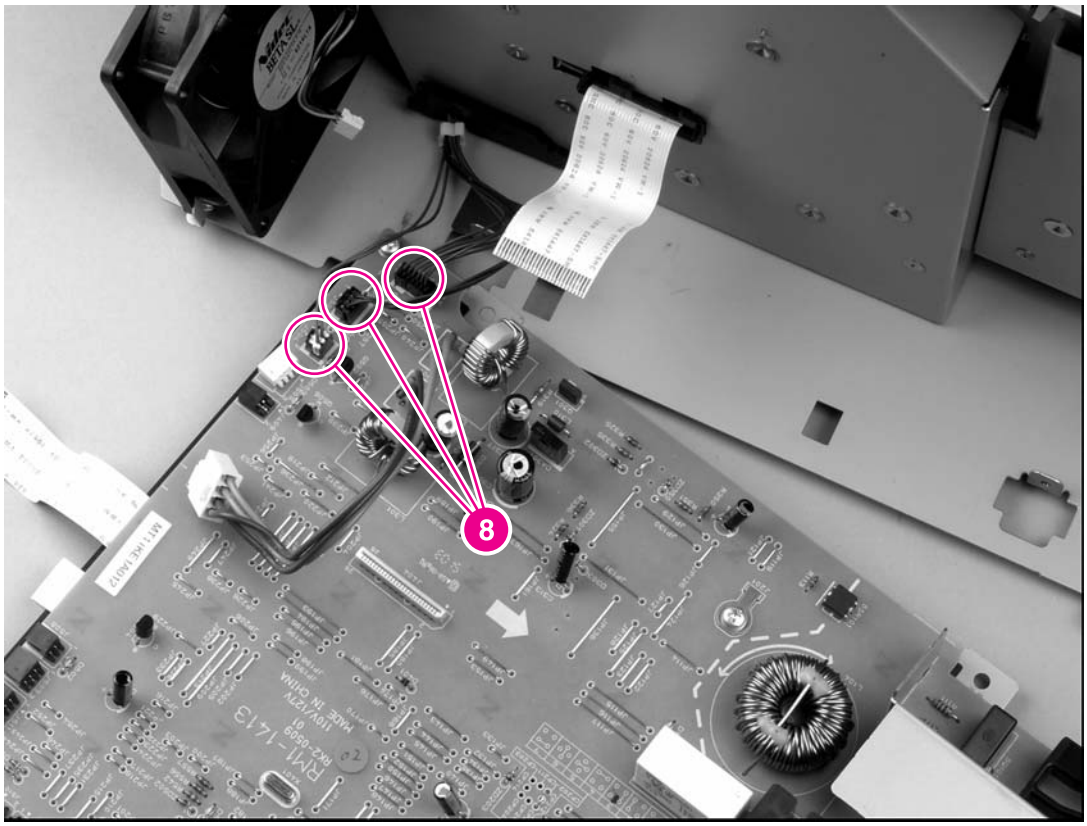

Figure 6-34. **Removing the ECU (6 of 6)**

NOTE The ECU and the ECU pan together are a single field-replaceable unit (FRU). You do not have to separate the ECU and the ECU pan.

Access plate

1. Remove the back cover (see Back cover), the I/O cover (see I/O cover), and the duplexer inlet guide (see Figure 6-20. Removing the fuser (2 of 5)).
2. Press the green lever in the tray 2 cavity to release the access plate at the front of the printer.
3. At the back of the printer, release the access plate from one tab (callout 1) at the left, inside, of the printer.

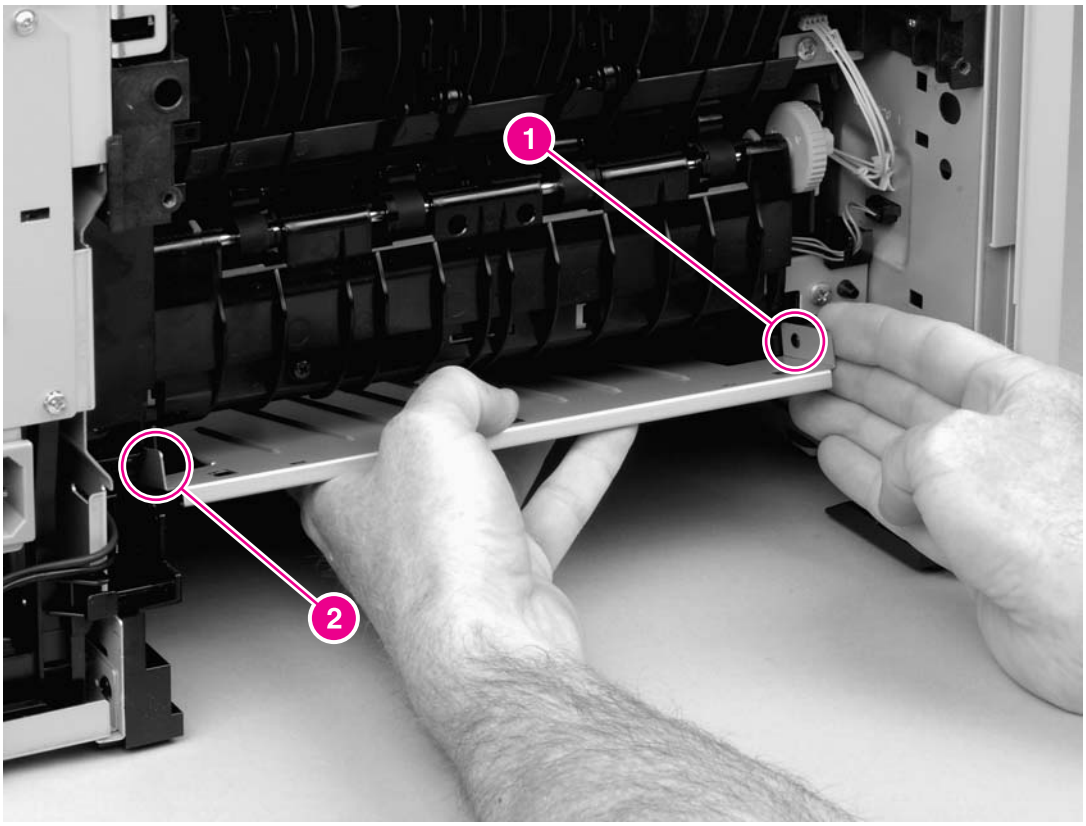

Figure 6-35. **Removing the access plate**

4. Lower the pan until the other side of the pan slides off of the other tab (callout 2).
5. Slide the pan out of the printer.

Power supply

1. Remove all of the covers (see Covers).
2. Remove the control panel (see Control panel).
3. Remove the formatter (see Formatter).
4. Remove the right handle (see Right-side handle).
5. Remove the ECU (see ECU).
6. Remove the duplexer pan (see Access plate).
7. Tip the printer so that it rests on its front.
8. At the bottom of the printer, remove the two screws (callout 1) that secure the oblique-roller assembly to the printer, and then lift the assembly from the printer.

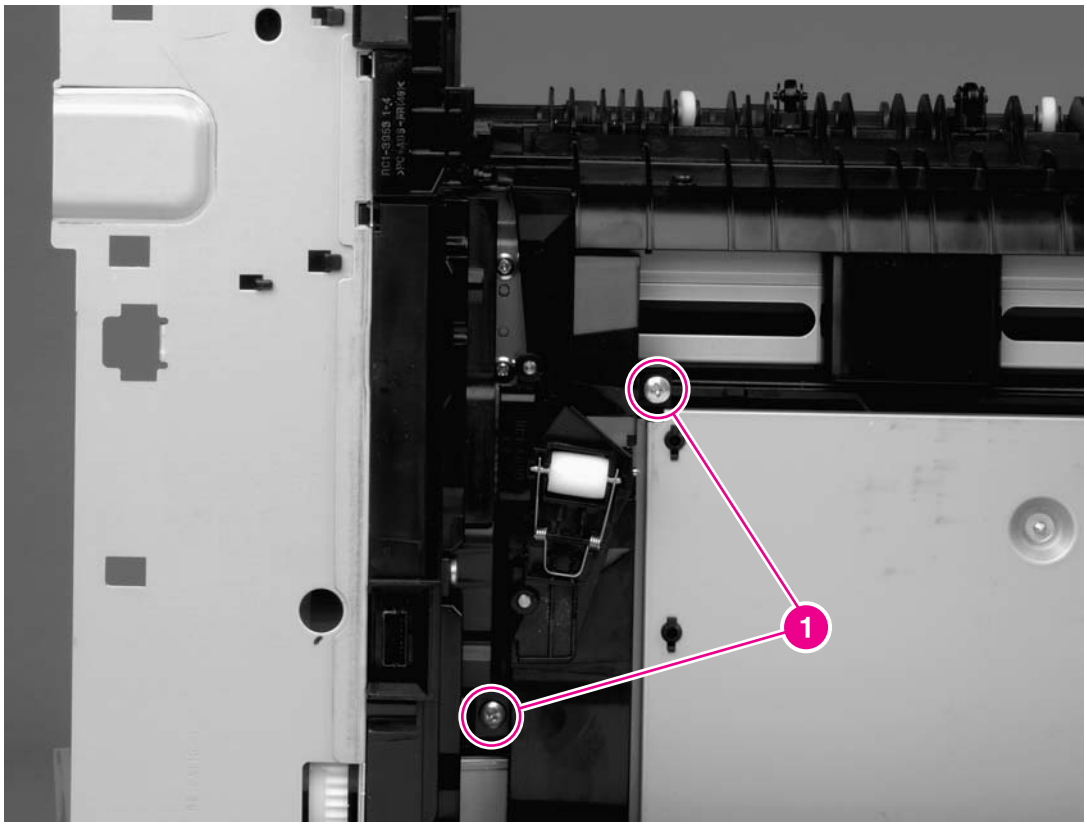

Figure 6-36. **Removing the power supply (1 of 5)**

9. Remove the two screws (callout 2) that secure the spacer to the printer, and then lift the spacer out of the printer.

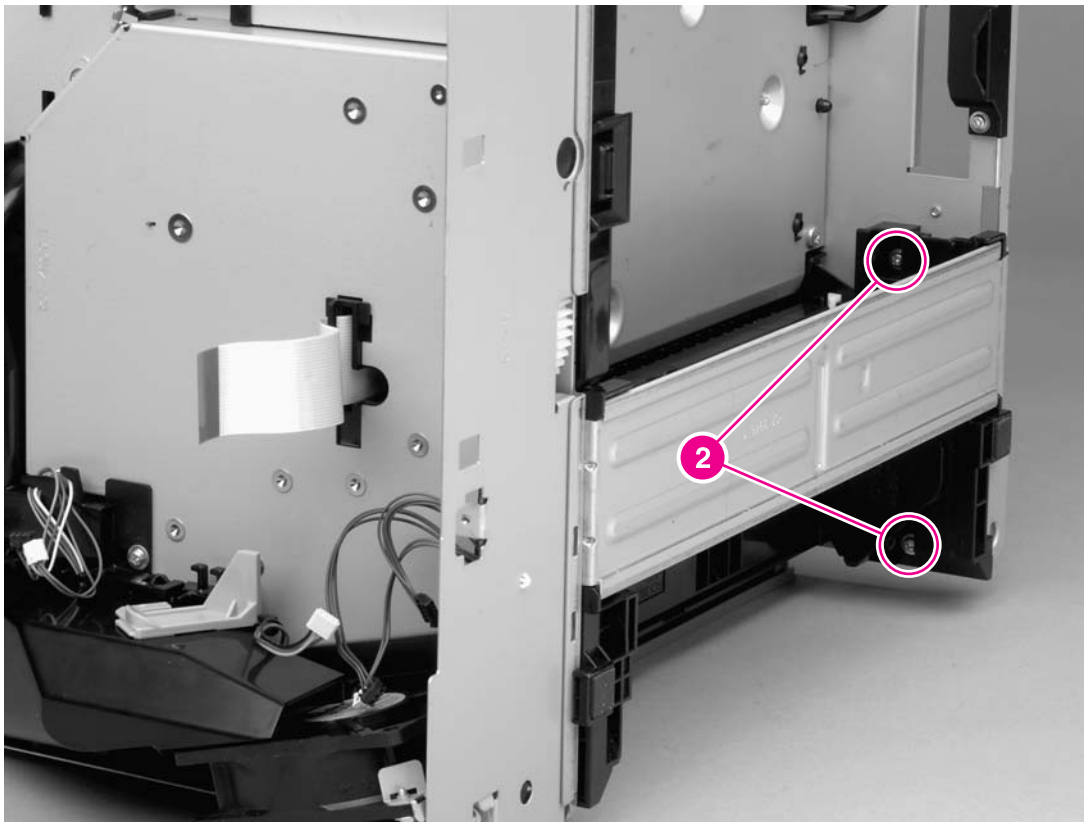

Figure 6-37. **Removing the power supply (2 of 5)**

10. Tip the printer so that it rests on its top.

11. Remove five screws (callout 3) from the power-supply pan.

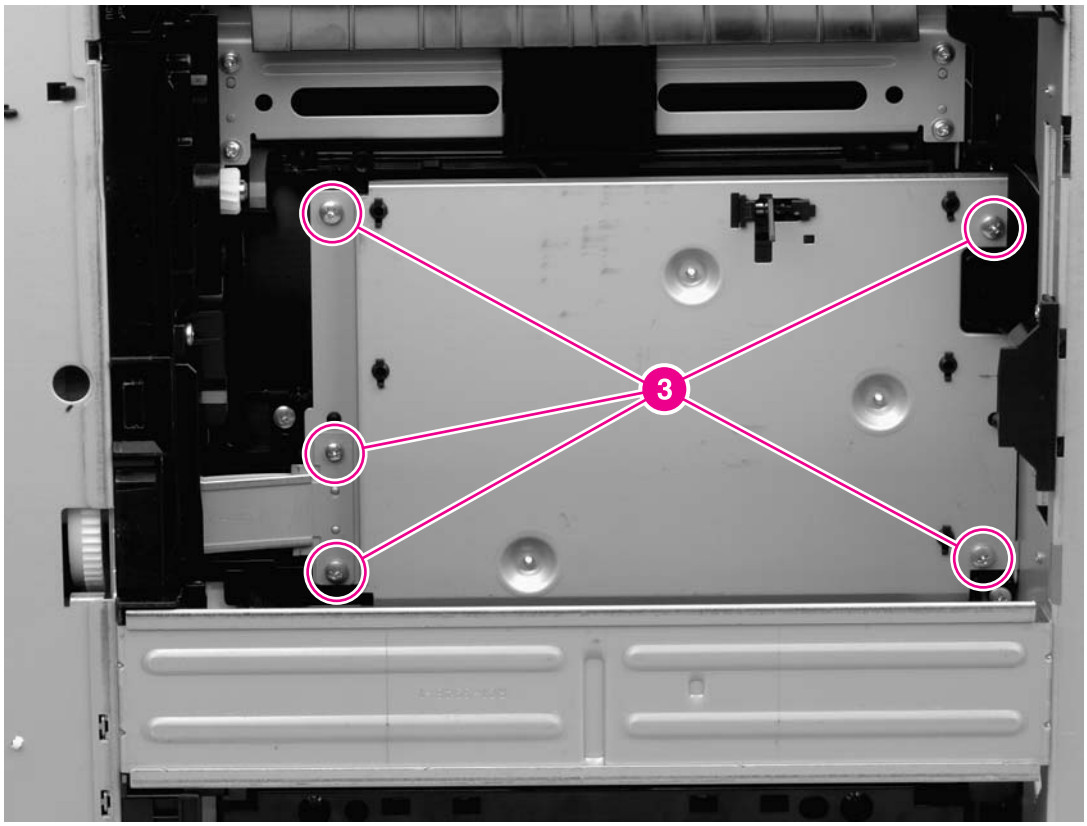

Figure 6-38. **Removing the power supply (3 of 5)**

12. At the left side of the printer, disconnect one cable (callout 4), and then thread the cable through the hole in the printer chassis.

13. Remove two screws (callout 5).

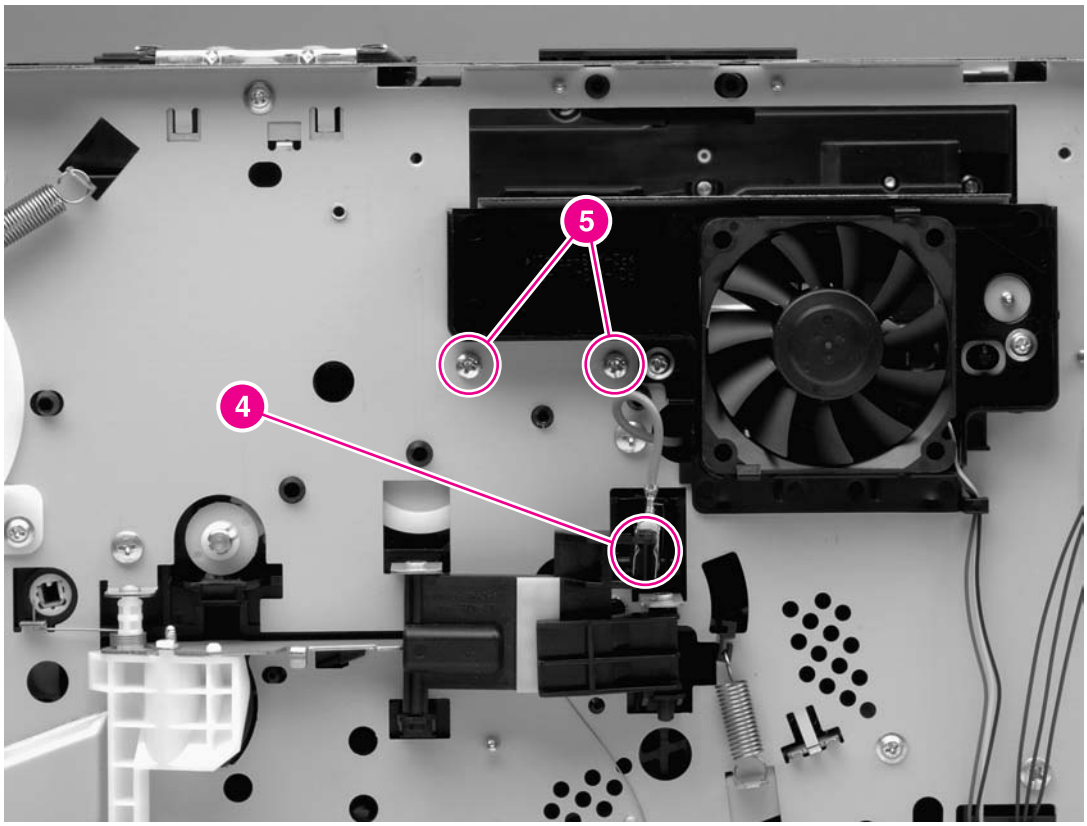

Figure 6-39. **Removing the power supply (4 of 5)**

14. Lift the power-supply pan, and then disconnect one cable (callout 6).

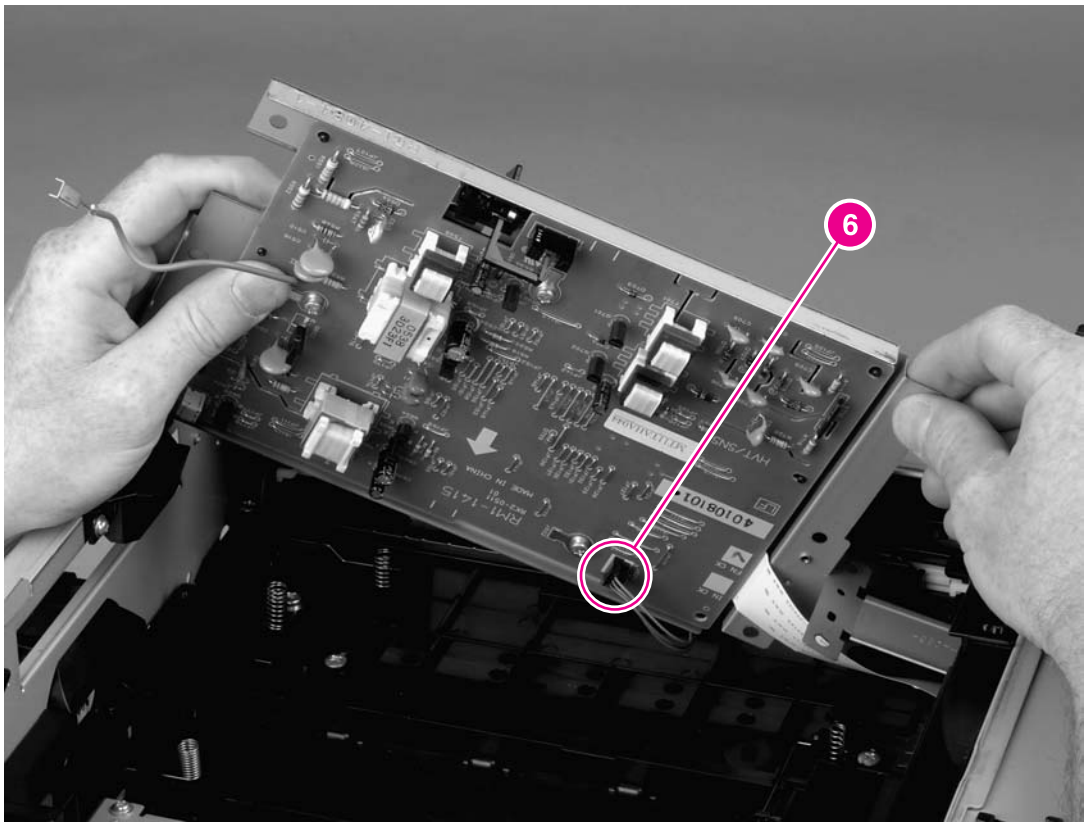

Figure 6-40. **Removing the power supply (5 of 5)**

NOTE The power supply and the power-supply pan together are a single FRU. You do not have to separate the power supply and the power-supply pan.

Gear assembly

1. Remove all of the covers (see Covers).
2. Remove the control panel (see Control panel).
3. Remove the formatter (see Formatter).
4. Remove the right-side handle (see Right-side handle).
5. Remove the ECU (see ECU).
6. Remove the two screws (callout 1) that secure the right-side fan to the printer chassis, and then lift the fan away from the printer.

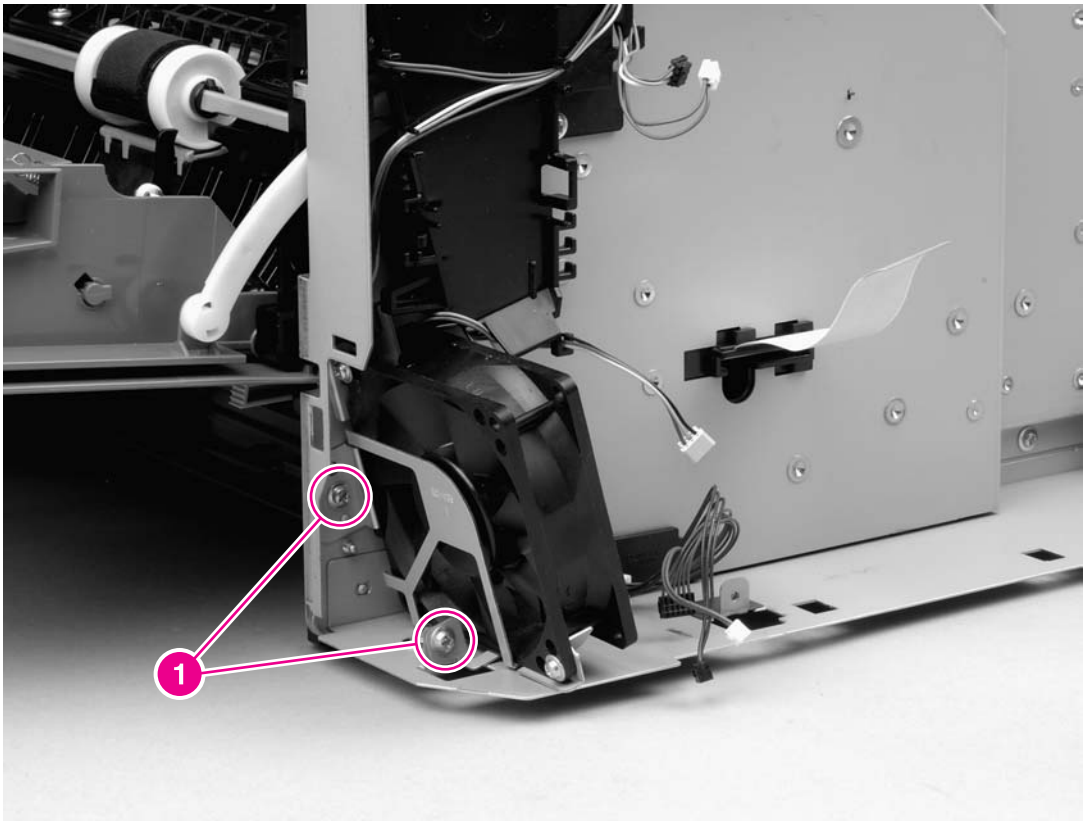

Figure 6-41. **Removing the gear assembly (1 of 6)**

7. Before removing the air duct, examine the cable routing around and through the air duct.

NOTE Make sure that you duplicate the cable routing upon reinstallation.

8. Remove the two screws (callout 2) that secure the air duct to the printer chassis.

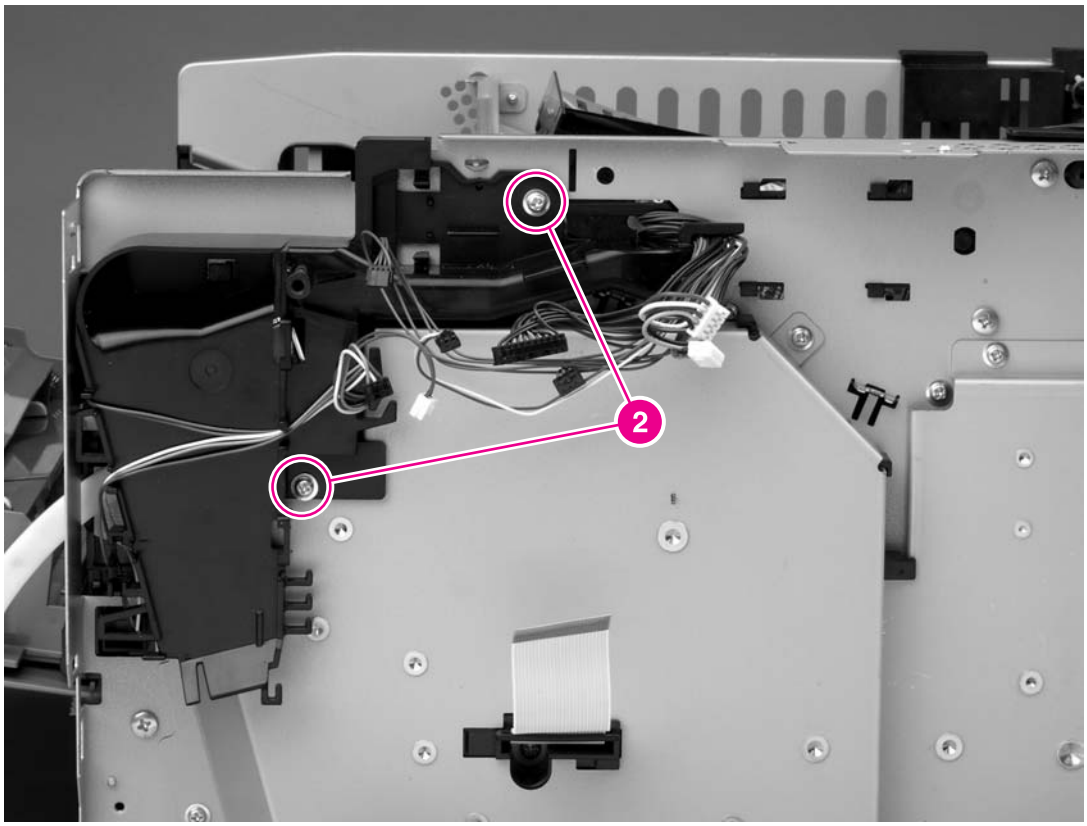

Figure 6-42. **Removing the gear assembly (2 of 6)**

9. Unwind the cables from the cable-stays on the air duct, and then lift the air duct away from the printer.

Reinstallation tip

Open the cartridge door before reinstalling the air duct.

10. Remove four screws (callout 3) from the gear-assembly plate.

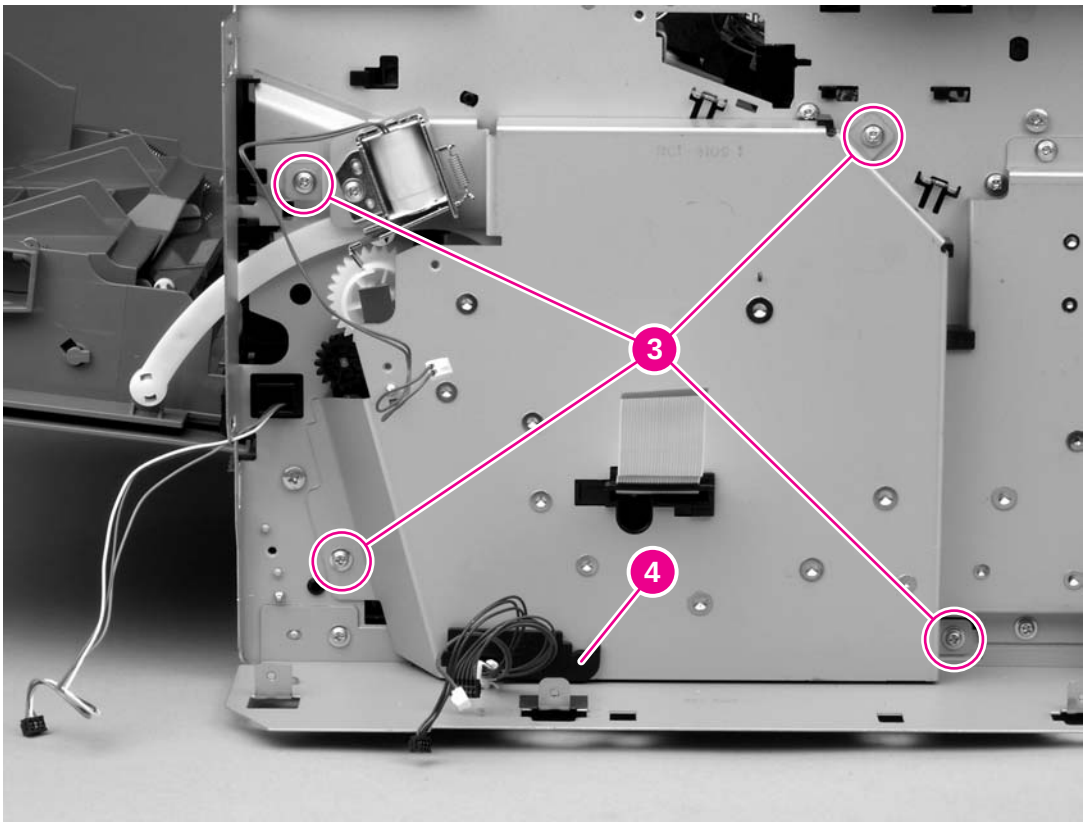

Figure 6-43. **Removing the gear assembly (3 of 6)**

11. Pull the gear assembly straight away from the printer.

NOTE The spring (callout 1 in Figure 6-44. Reinstalling the gear assembly) is not attached to the gear-assembly plate or to the large gear. As a result, the spring might fall out of the printer when you remove the gear assembly.

Reinstallation tip

Close the cartridge door and press the large gear against the printer chassis before you start to reinstall the gear assembly.

Reinstallation tip

The spring has a locator pin that should be inserted into the small hole in the gear-assembly plate before reinstallation.

Reinstallation tip

Use the rod (callout 2 in Figure 6-44. Reinstalling the gear assembly) on the gear-assembly plate as a locator to find the correct positioning of the gear assembly. Insert the rod into the hole in the lower gear on the printer chassis.

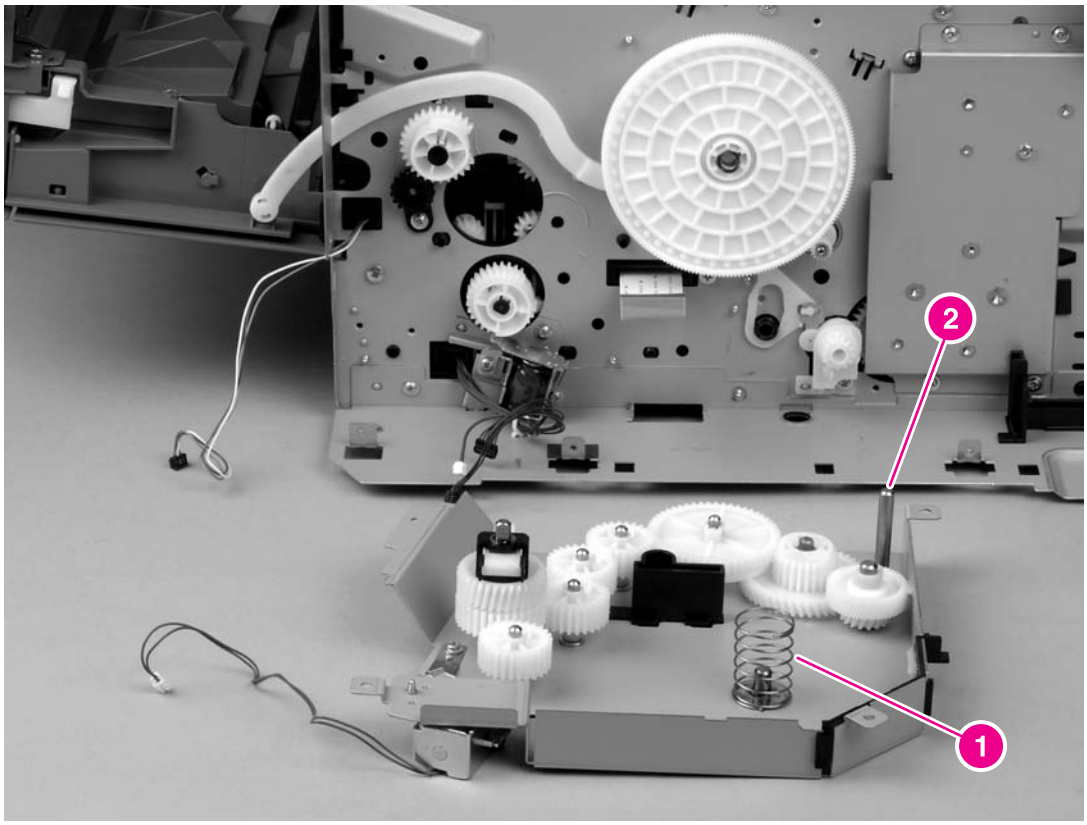

Figure 6-44. **Reinstalling the gear assembly**

Tray 1 solenoid

1. Remove all of the covers (see Covers).
2. Remove the control panel (see Control panel).
3. Remove the formatter (see Formatter).
4. Remove the right-side handle (see Right-side handle).
5. Remove the ECU (see ECU).
6. Remove the right-side fan (see Figure 6-41. Removing the gear assembly (1 of 6)).
7. Remove the air duct (see Figure 6-42. Removing the gear assembly (2 of 6)).
8. Remove one screw (callout 1).

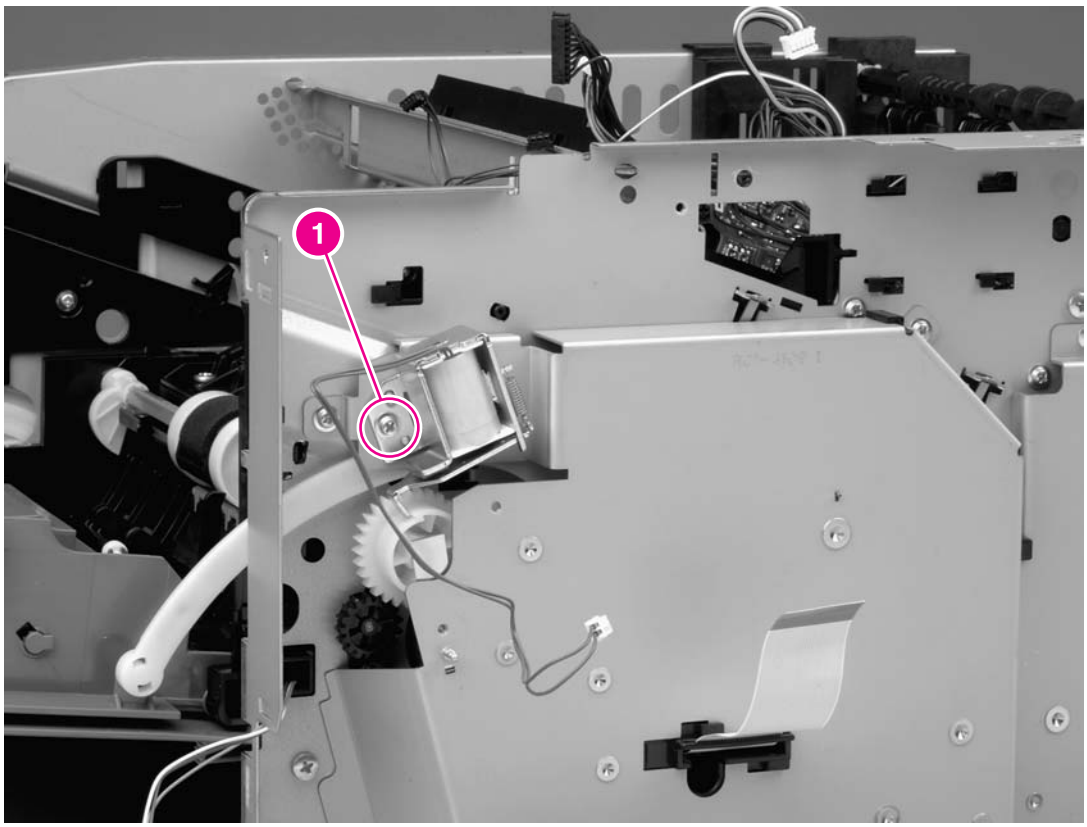

Figure 6-45. **Removing the tray 1 solenoid**

9. Lift the solenoid off of the printer chassis.

Tray 2 solenoid

1. Remove all of the covers (see Covers).
2. Remove the control panel (see Control panel).
3. Remove the formatter (see Formatter).
4. Remove the right-side handle (see Right-side handle).
5. Remove the ECU (see ECU).
6. Remove the gear assembly (see Gear assembly).
7. Remove one screw (callout 1).

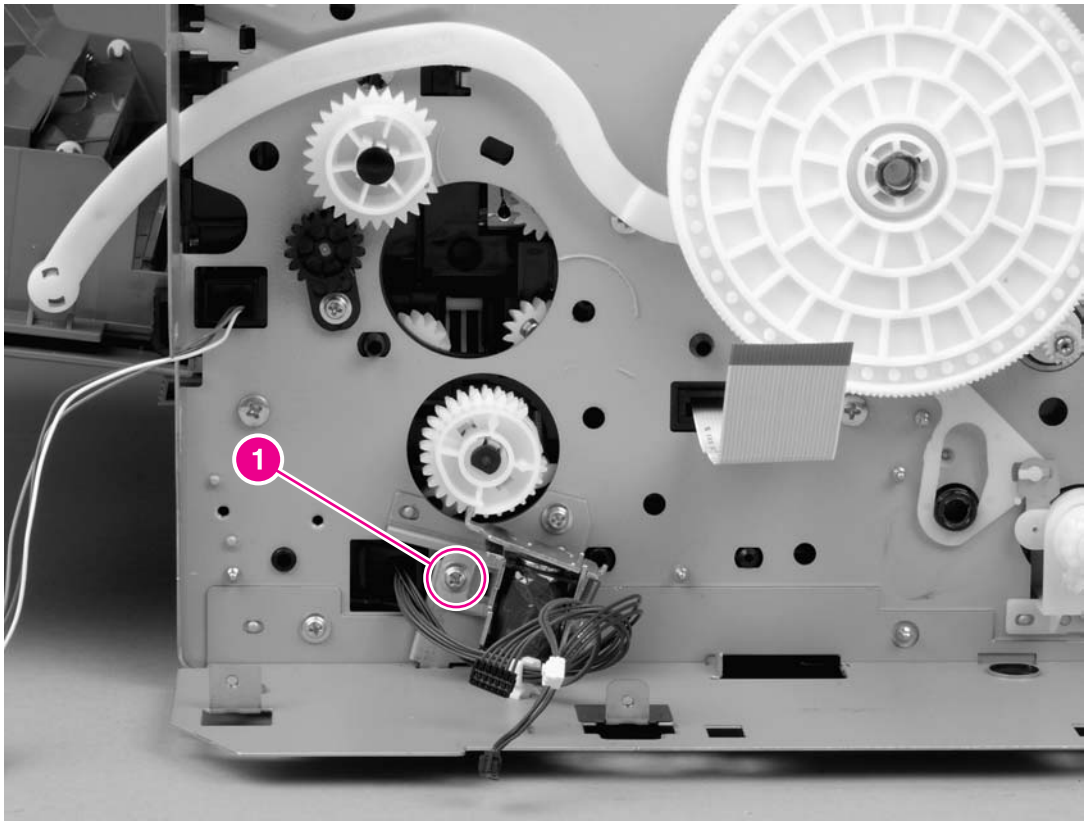

Figure 6-46. **Removing the tray 2 solenoid**

8. Lift the solenoid off of the printer chassis.

E-label reader (memory tag)

1. Remove the right-side cover (see Right-side cover), the back cover (see Back cover), the I/O cover (see I/O cover), the left-side cover (see Left-side cover), the top, right cover (see Top, right cover), and the top cover (see Top cover).
2. Disconnect one cable (callout 1), and then thread the cable through the hole in the printer chassis.

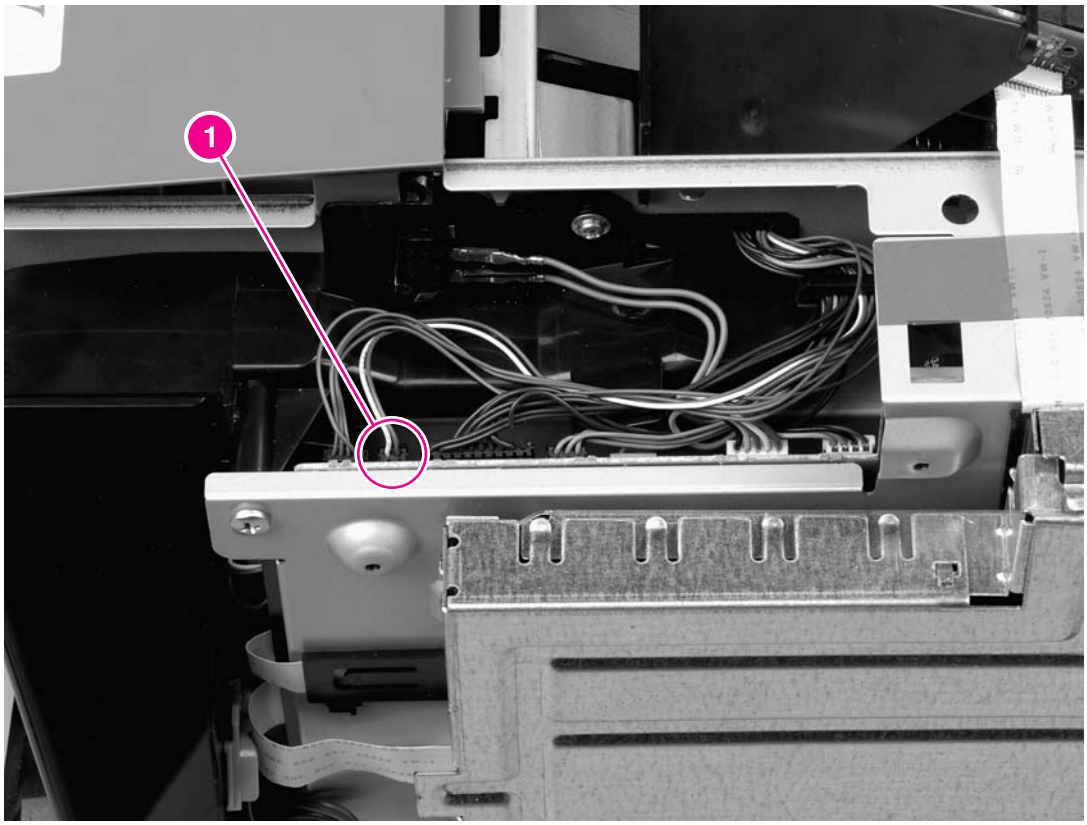

Figure 6-47. **Removing the e-label reader (1 of 2)**

3. Remove one screw (callout 2).

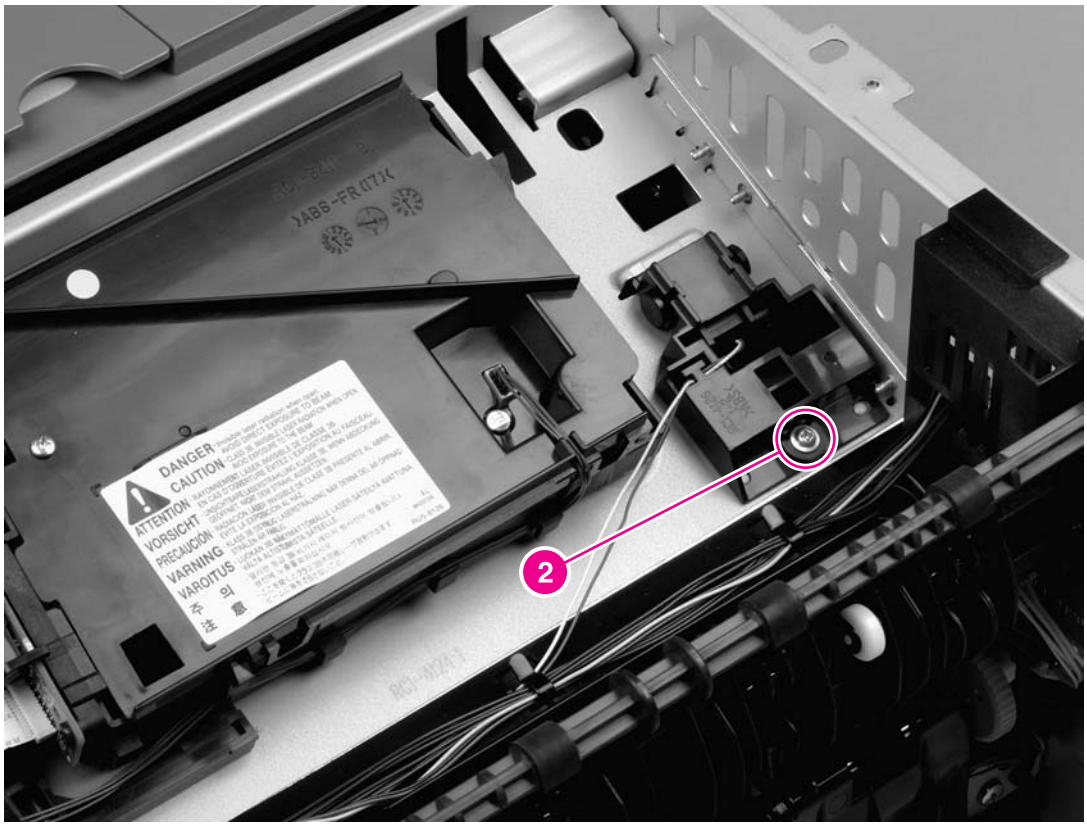

Figure 6-48. **Removing the e-label reader (2 of 2)**

4. Lift the e-label reader out of the printer.

Face-down-roller shaft

1. Remove the right-side cover (see Right-side cover), the back cover (see Back cover), the I/O cover (see I/O cover), the left-side cover (see Left-side cover), the top, right cover (see Top, right cover), and the top cover (see Top cover).
2. Rotate the bushings (callout 1) at both ends of the face-down-roller shaft so that they point in a horizontal direction.

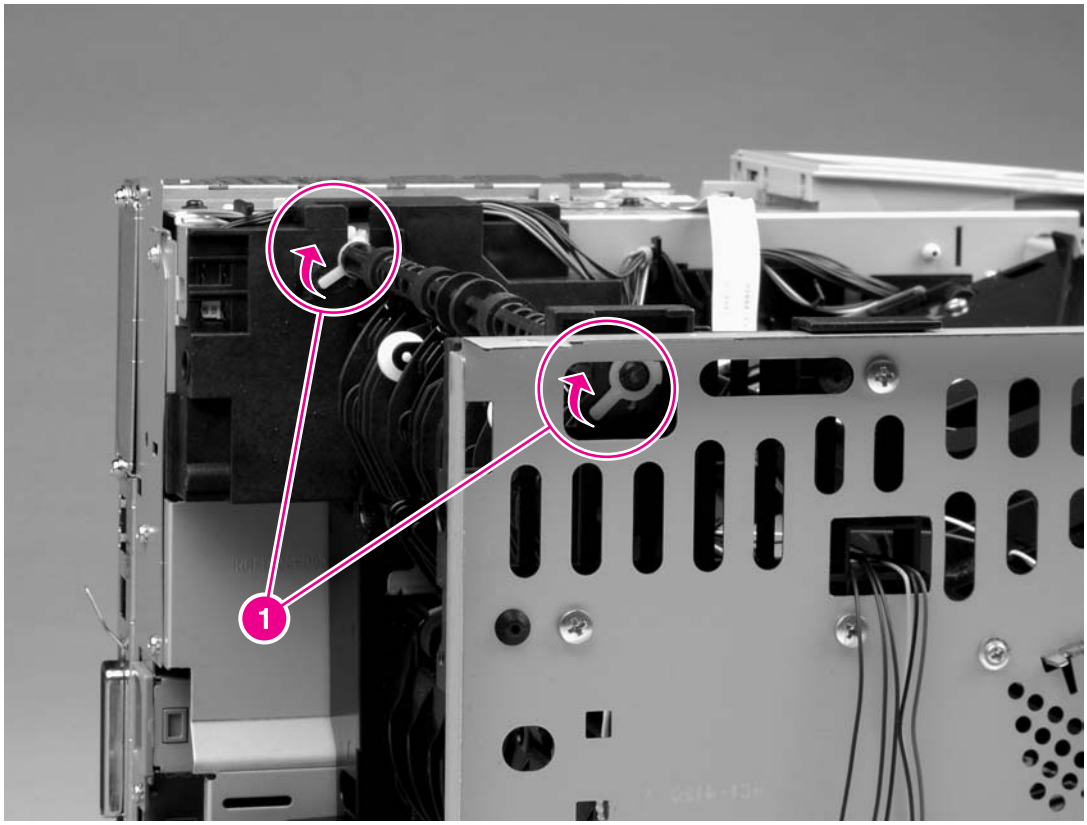

Figure 6-49. **Removing the face-down-roller shaft (1 of 2)**

3. Lift the end at the right side of the printer, and then slide the shaft toward the right side to clear the hole on the left side of the printer chassis.

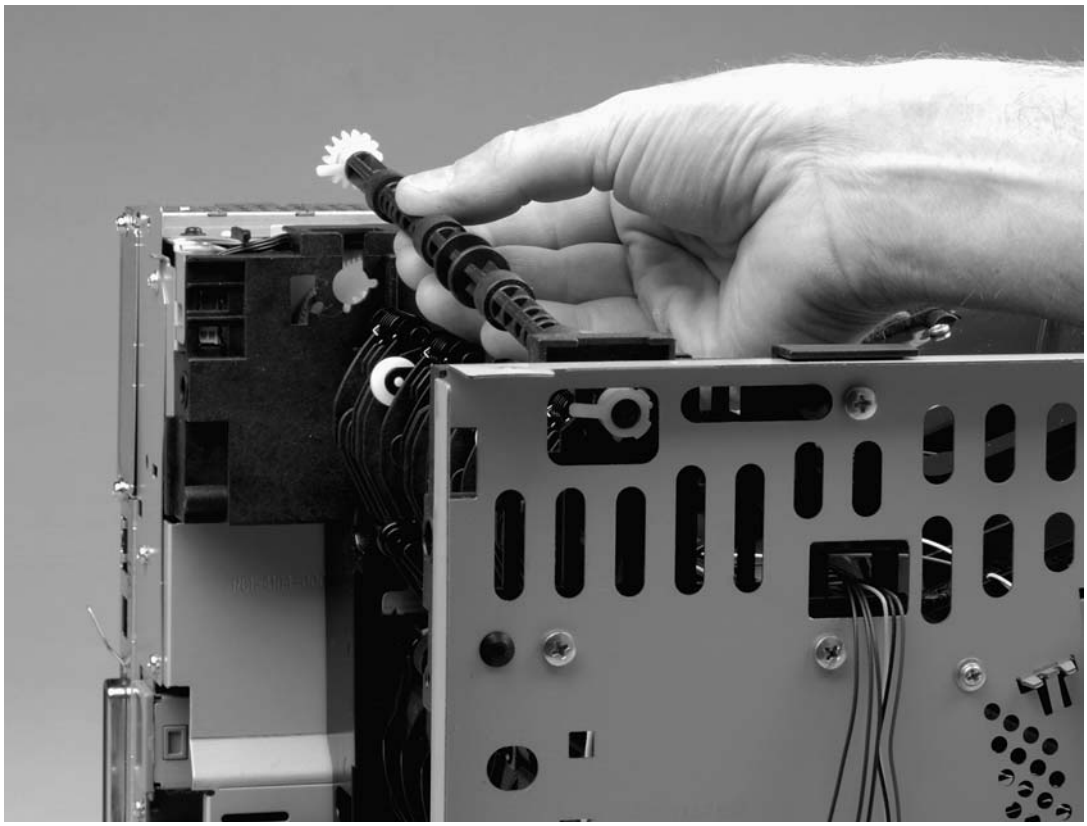

Figure 6-50. **Removing the face-down-roller shaft (2 of 2)**

Cartridge door

1. Remove the back cover (see Back cover), the I/O cover and the left-side cover (see Left-side cover).
2. With the cartridge door closed, unhook the spring (callout 1) at the printer chassis.
3. Remove one screw (callout 2)

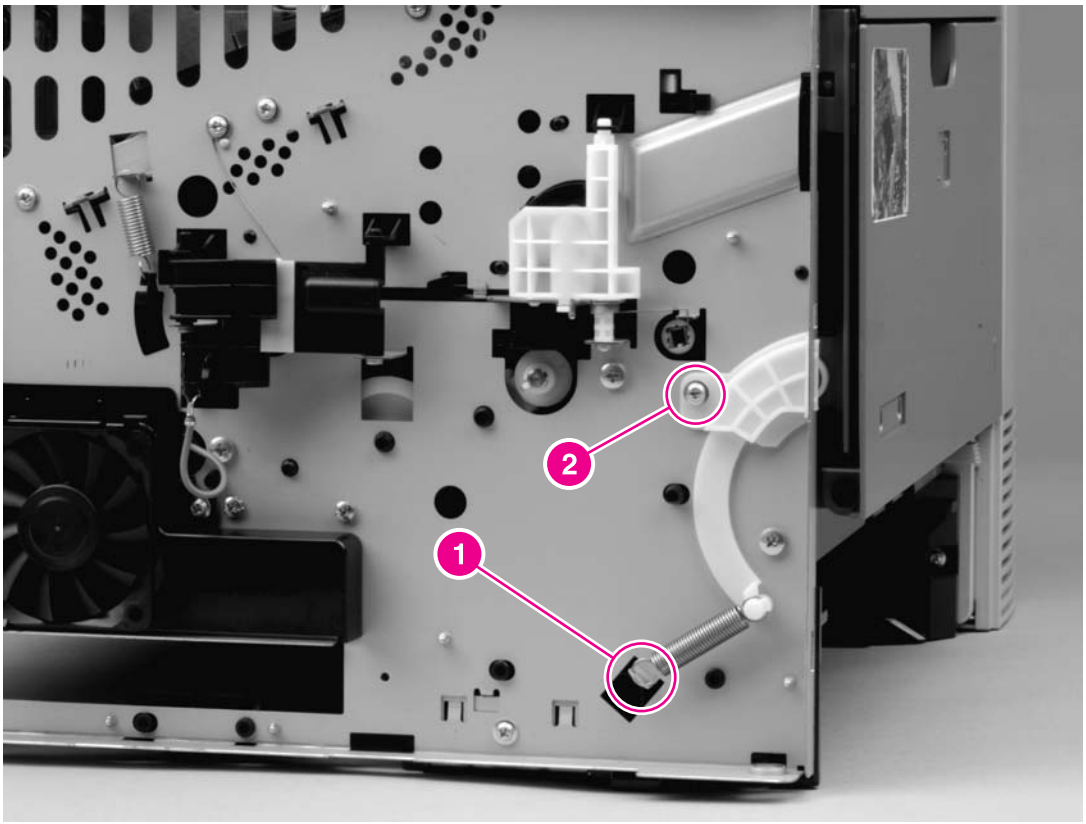

Figure 6-51. **Removing the cartridge door (1 of 3)**

4. Open the cartridge door, and then use a flatblade screwdriver to release the cartridge-door arm (callout 2) at the right side of the cartridge door.

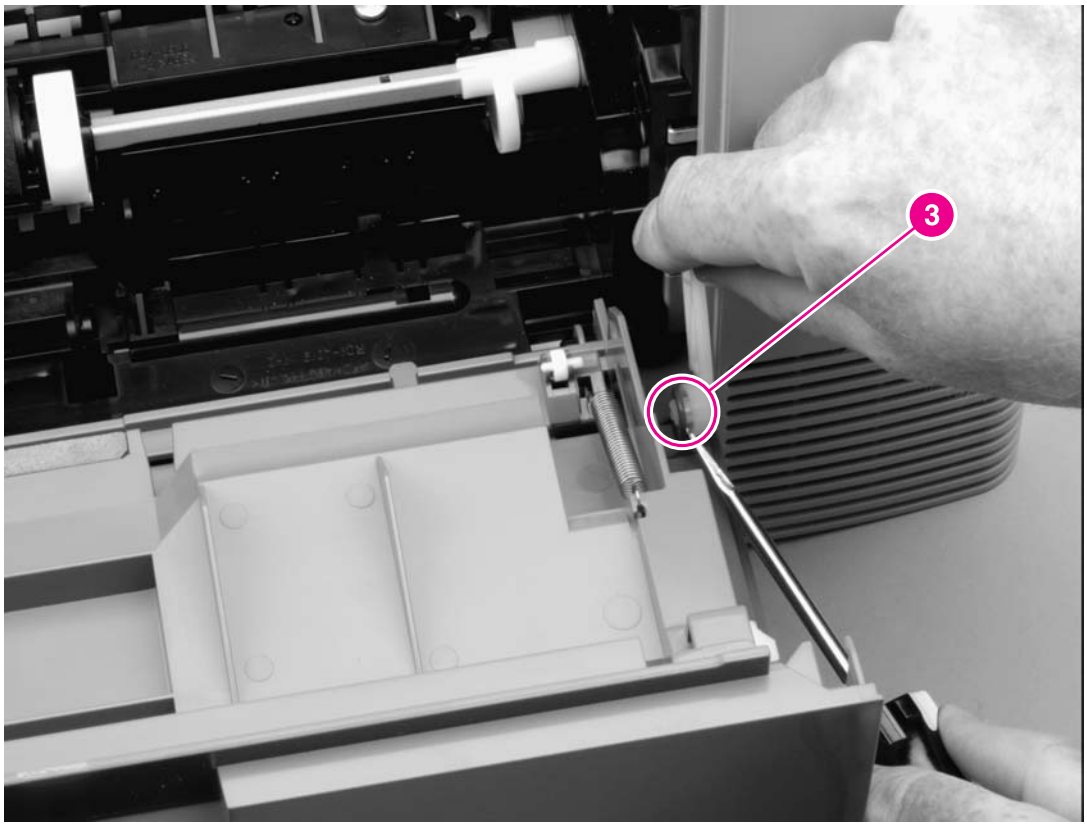

Figure 6-52. **Removing the cartridge door (2 of 3)**

5. Slide the cartridge door to the left, off of the hinges (callout 3).

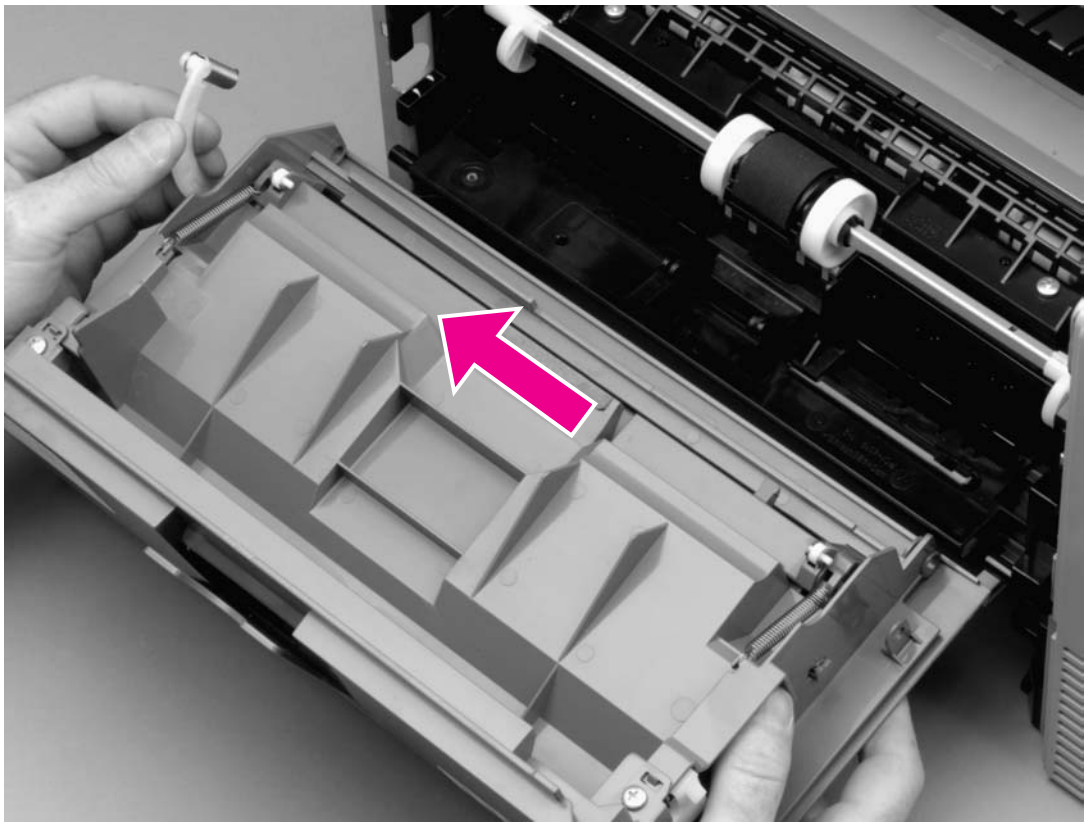

Figure 6-53. **Removing the cartridge door (3 of 3)**

Transfer roller

1. Release the left end of the transfer roller by using needle-nose pliers to pinch two tabs at the left end of the transfer roller.

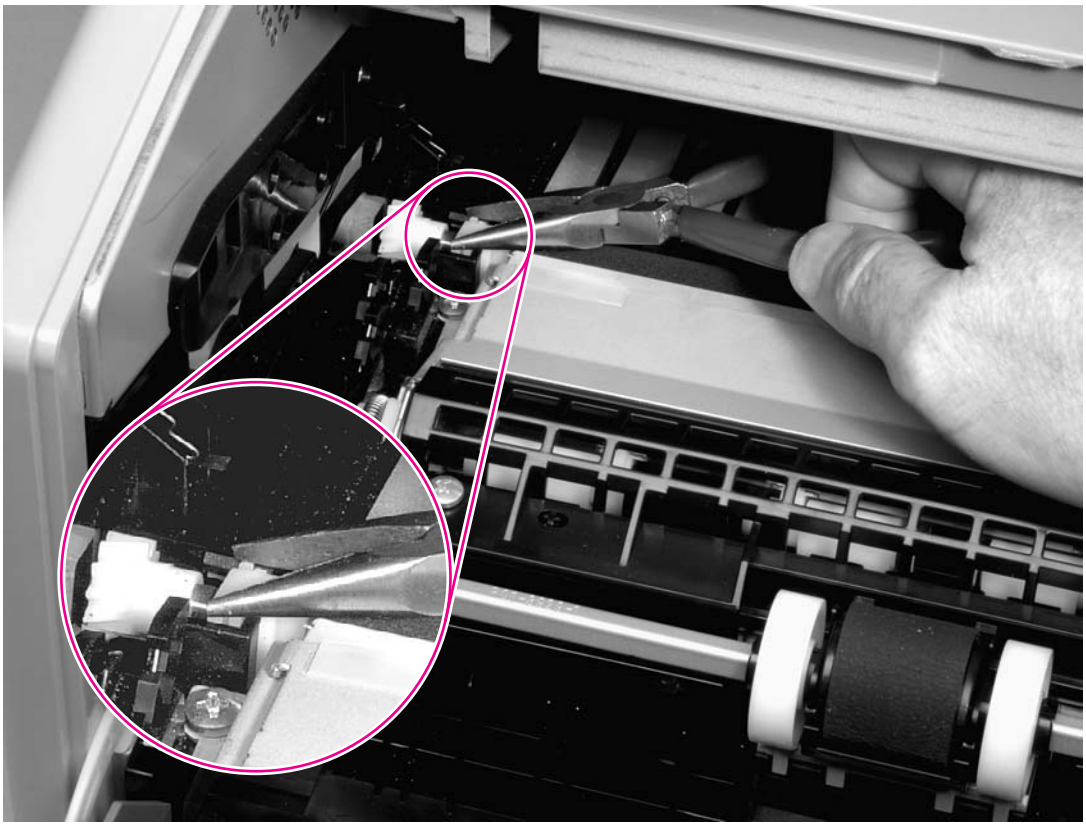

Figure 6-54. **Removing the transfer roller**

2. Use the needle-nose pliers in the same manner to release the other end.
3. Lift the transfer roller out of the printer.

NOTE The left end of the transfer roller has a spring attached. At the right end of the roller, the spring is attached to the printer rather than to the roller. As a result, the spring at the right end remains in the printer.

Registration assembly

1. Remove the back cover (see Back cover), the I/O cover and the left-side cover (see Left-side cover).
2. Pinch the tab on the registration assembly gear (callout 1), and then slide the gear off of the shaft.

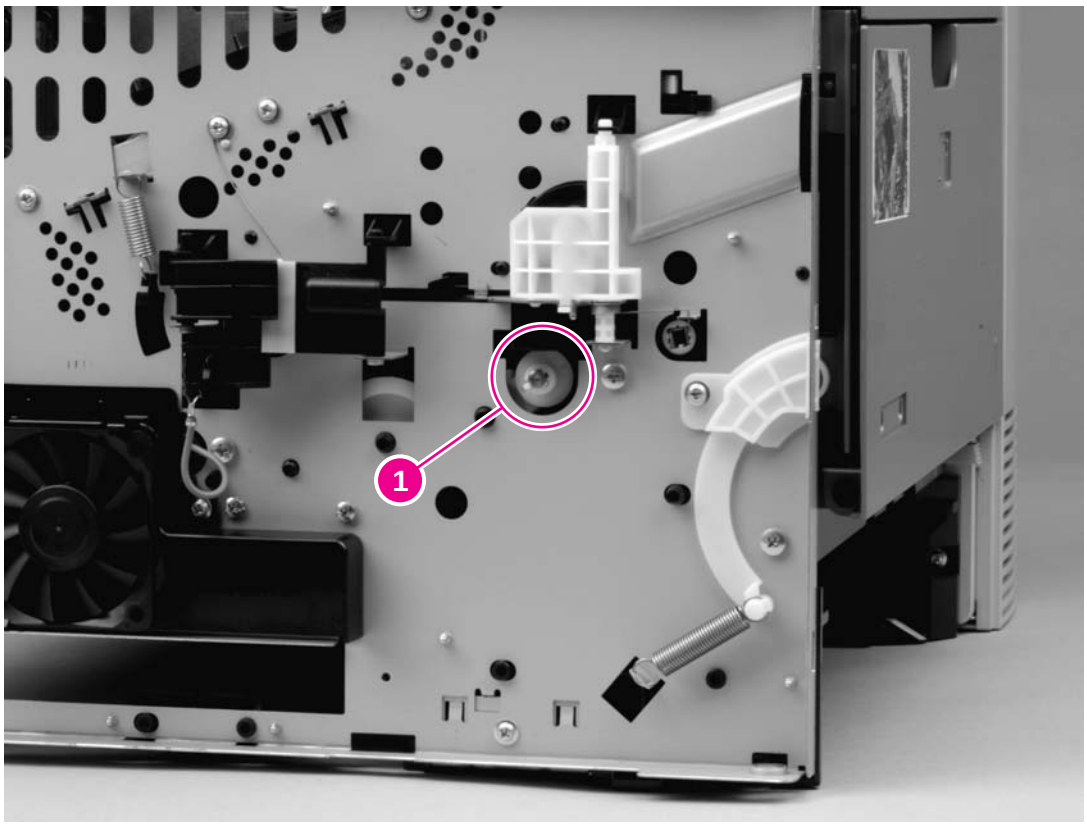

Figure 6-55. **Removing the registration assembly (1 of 3)**

3. Remove two screws (callout 2) from the registration-assembly cover, and then lift the cover out of the printer.

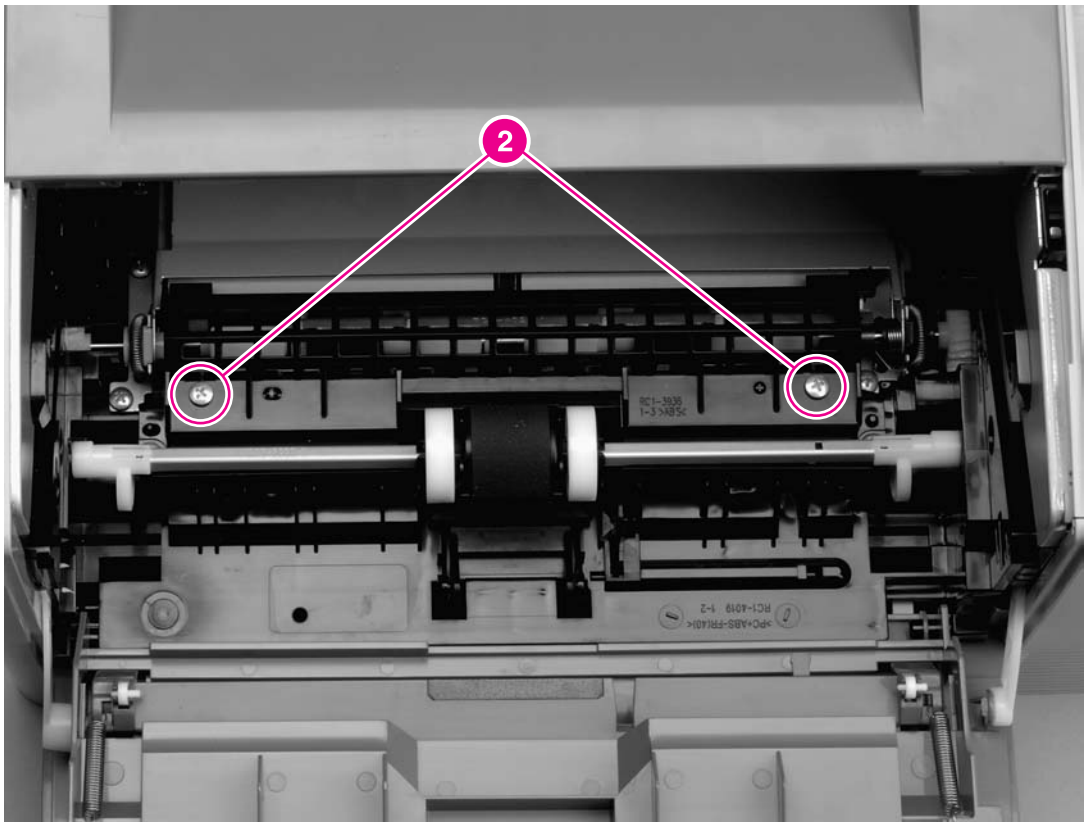

Figure 6-56. **Removing the registration assembly (2 of 3)**

4. Remove four screws (callout 3).

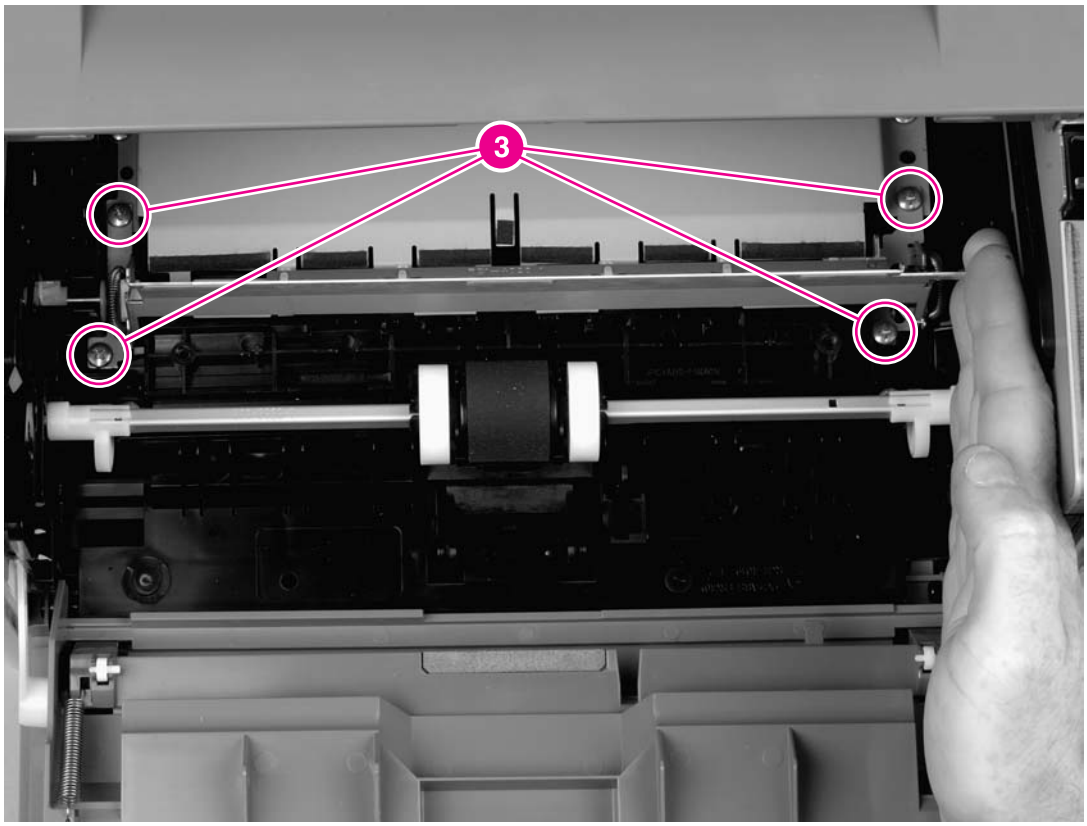

Figure 6-57. **Removing the registration assembly (3 of 3)**

5. Lift the registration assembly out of the printer.

Tray 1 pickup roller

1. Spread the pickup-roller locks (callout 1) on each side of the tray 1 pickup roller to release the roller.

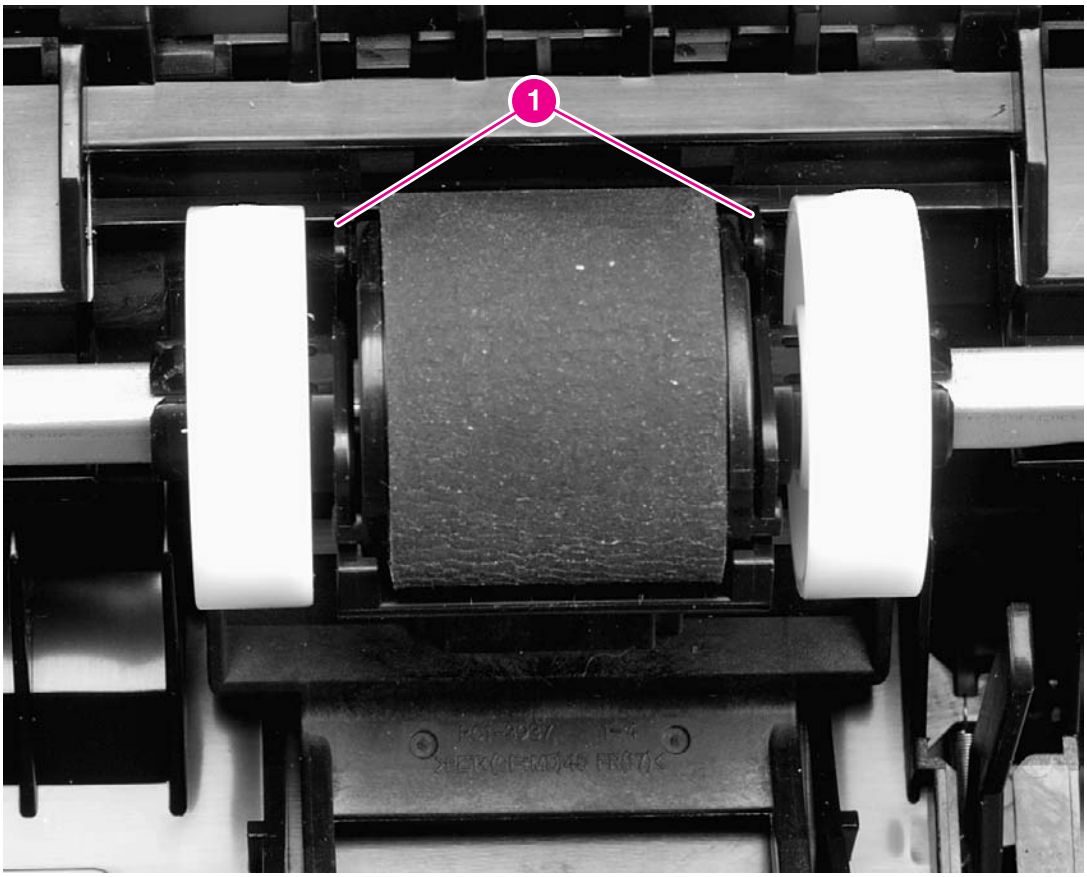

Figure 6-58. **Removing the tray 1 pickup roller**

2. Rotate the top of the roller off of the shaft, and then lift the roller out of the printer.

Tray 2 pickup roller

NOTE Also follow these instructions to remove any optional-tray pickup rollers.

1. Rotate the bushings (callout 1) on each side of the roller.

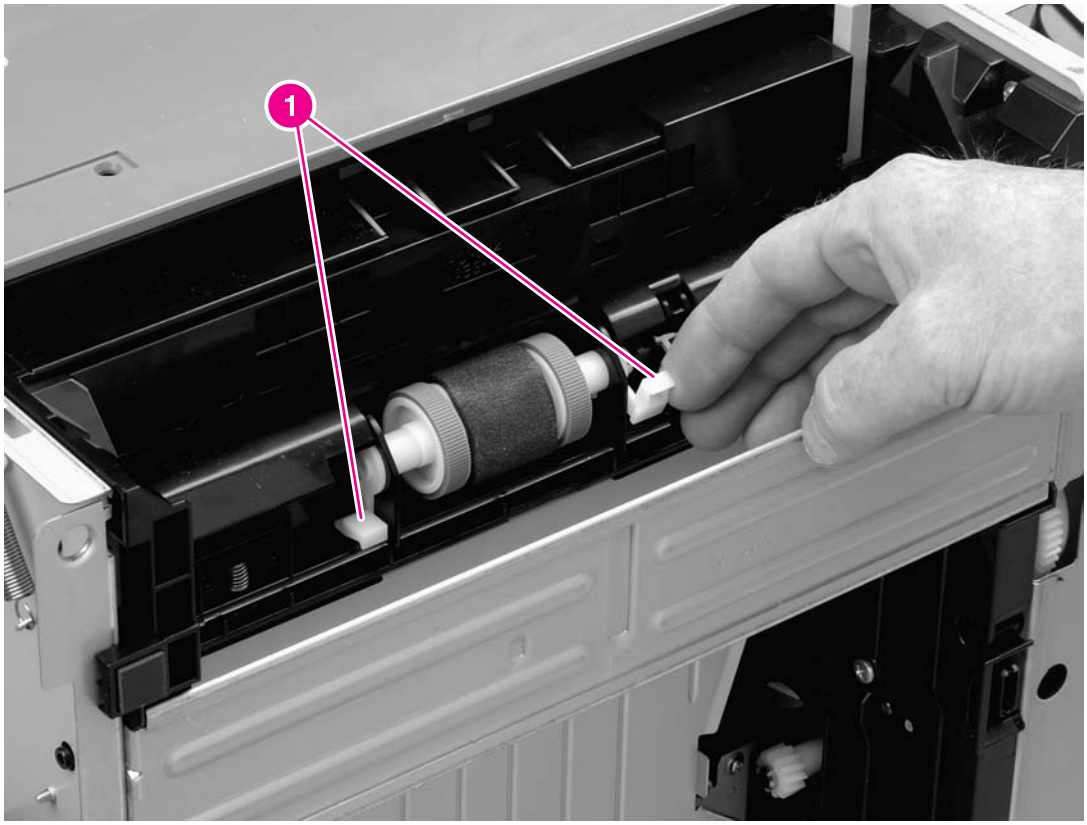

Figure 6-59. **Removing the tray 2 pickup roller (1 of 2)**

2. Remove the left-side bushing by sliding the bushing to the left.
3. Slide the roller and shaft toward the left until they clear the hole in the right-side bushing, and then lift the right end of the shaft.

4. Slide the roller and shaft toward the right and lift the roller and shaft together out of the printer.

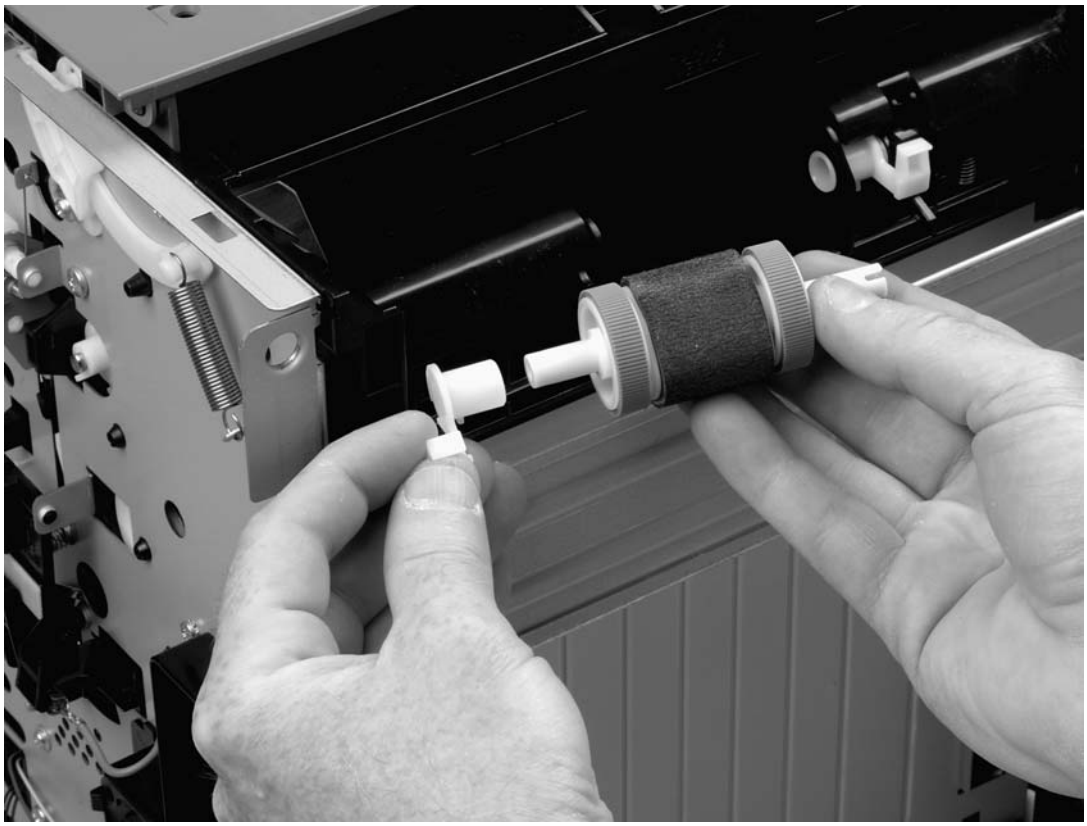

Figure 6-60. **Removing the tray 2 pickup roller (2 of 2)**

Separation pad

NOTE To replace a separation pad, replace the entire separation-pad assembly.

1. Pull the tray out of the printer.
2. Remove two screws (callout 1) from the separation-pad assembly.

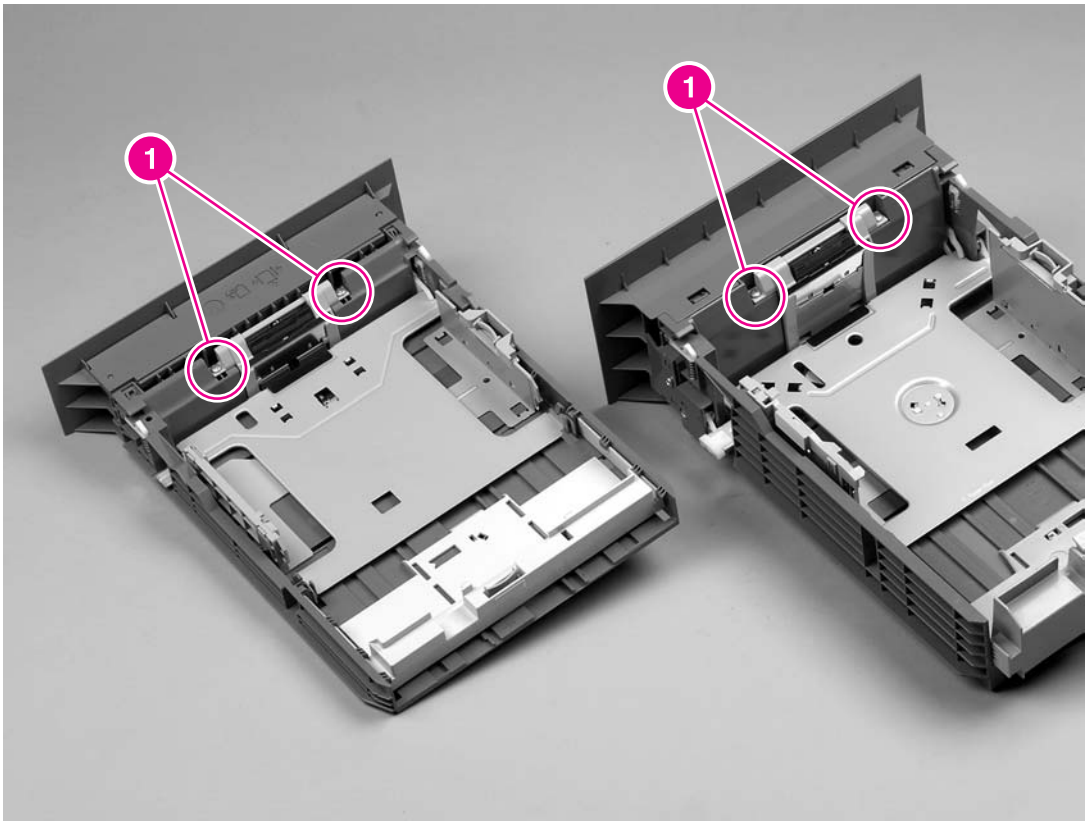

Figure 6-61. **Removing the separation pad**

3. Lift the assembly out of the tray.

NOTE Separation-pad assemblies are **not** interchangeable between 250-sheet trays and 500-sheet trays.

7 Troubleshooting

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Troubleshooting tree

Figure 7-1. Basic troubleshooting is a graphical representation of the troubleshooting process.

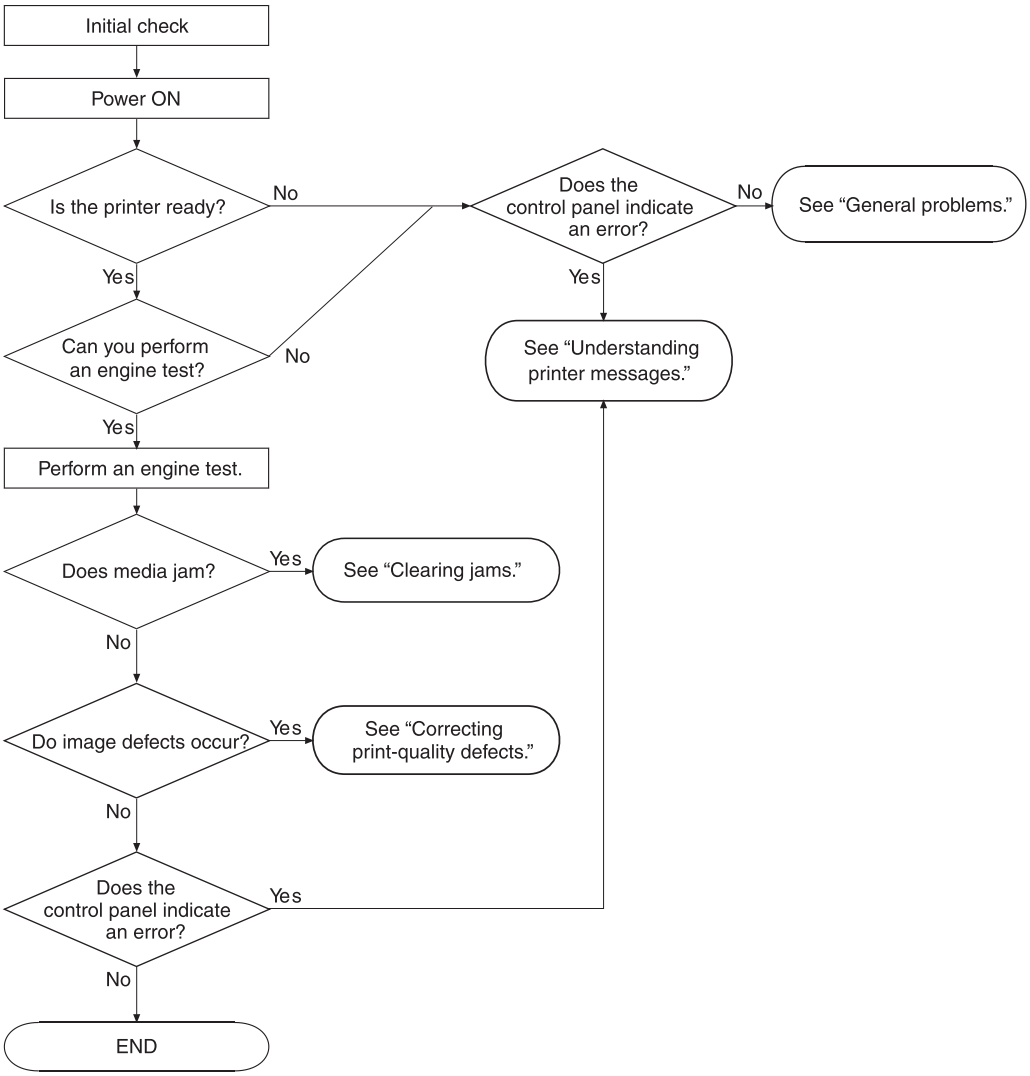


Figure 7-1. Basic troubleshooting

Troubleshooting flowchart

If the printer is not responding correctly, use the flowchart to determine the problem. If the printer does not pass a step, follow the corresponding troubleshooting suggestions.

NOTE

Macintosh users: For more troubleshooting information, see Troubleshooting common Macintosh problems.

1. Does the control-panel display show READY?

YES →	Go to step 2.
NO ↓	
The display is blank, and the printer fan is off.	• Turn the printer off, and then turn the printer on again. • Check the power cord connections and the power switch. • Plug the printer into a different outlet. • Check that the power supplied to the printer is steady, and meets printer specifications. (See Electrical specifications.)
The display is blank, but the printer fan is on.	• Press a printer control panel button to see if the printer responds. • Turn the printer off, and then turn the printer on again.
The display is in the wrong language.	• Turn the printer off, and then turn the printer on again. When XXX MB appears on the control-panel display, press and hold down ✓ (SELECT button) until all three lights stay on. This could take up to 10 seconds. Then, release ✓ (SELECT button). Press ▼ (DOWN button) to scroll through the available languages. Press ✓ (SELECT button) to save the appropriate language as the new default.
The display shows garbled or unfamiliar characters.	• Make sure that the appropriate language is selected at the printer control panel. • Turn the printer off, and then turn the printer on again.
A message other than READYappears on the printer control-panel display.	• Go to Table 7-8. Interpreting control-panel messages.

2. Can you print a configuration page?

(See Configuration page.)

YES →	**Go to step 3.**
NO ↓	
A configuration page does not print.	• Verify that all trays are correctly loaded, adjusted, and installed in the printer. • By using the computer, check the print queue or print spooler to see if the printer has been paused. If problems exist with the current print job, or if the printer is paused, a configuration page will not print. (Press STOP and try step 2 in the troubleshooting flowchart again.)
A blank page prints.	• Verify that the sealing tape was removed from print cartridge. (See the getting started guide or the instructions that came with the print cartridge.) • The print cartridge might be empty. Install a new print cartridge.
A message other than READY or PRINTING CONFIGURATION appears on the printer control-panel display.	• Go to Table 7-8. Interpreting control-panel messages.

3. Can you print from a program?

YES →	Go to step 4.
NO ↓	
The job will not print.	• If the job will not print, and a message appears on the control-panel display, see Table 7-8. Interpreting control-panel messages. • By using the computer, check to see if the printer has been paused. Press STOP to continue. • If the printer is on a network, check that you are printing to the correct printer. To verify that no network problem exists, connect the computer directly to the printer with a parallel or USB cable, change the port to LPT1, and try to print. • Check the interface cable connections. Disconnect and reconnect the cable at the computer and the printer. • Test the cable by trying it on another computer. • If you are using a parallel connection, make sure that the cable is IEEE-1284 compliant. • If the printer is on a network, print a configuration page. (See Configuration page.) If an HP Jetdirect print server is installed, a Jetdirect page also prints. Check the Jetdirect configuration page to verify that the network protocol status and settings are correct for the printer. • To verify that no computer problem exists, print from another computer (if possible). • Make sure that the print job is being sent to the correct port (LPT1 or network printer port, for example). • Make sure that you are using the correct printer driver. (See the user guide.) • Reinstall the printer driver. (See the getting started guide.) • Check that the computer port is configured and working correctly. (Try connecting another printer to that port and printing.) • If you are using the PS driver to print, set **PRINT PS ERRORS=ON** on the **Printing** submenu (on the **Configure Device** menu), and then print the job again. If an error page prints, see the instructions in the next column. • On the **System Setup** submenu (on the **Configure Device** menu) at the printer control panel, make sure that **PERSONALITY=AUTO**. • You might be missing a printer message that could help you solve the problem. On the **System Setup** submenu (on the **Configure Device** menu) at the printer control panel, temporarily turn the Clearable Warnings and Auto Continue settings off. Then, print the job again.
A PS error page or list of commands prints.	• The printer might have received a nonstandard PS code. On the **System Setup** submenu (on the **Configure Device** menu) at the printer control panel, set **PERSONALITY=PS** for this print job only. After the job has printed, return the setting to AUTO. • Make sure that the print job is a PS job, and that you are using the PS driver. • The printer might have received PS code although it is set to PCL. On the **System Setup** submenu (on the **Configure Device** menu), set **PERSONALITY=AUTO**.

4. Does the job print as expected?

YES →	Go to step 5.
NO ↓	
Print is garbled, or only a portion of the page prints.	• Make sure that you are using the correct printer driver. (See the user guide.) • The data file that was sent to the printer might be corrupt. To test, try printing it on another printer (if possible), or try a different file. • Check the interface cable connections. Test the cable by trying it on another computer (if possible). • Replace the interface cable with a high-quality cable (see Parts and diagrams). • Simplify the print job, print at a lower resolution, or install more printer memory. • You might be missing a printer message that could help you solve the problem. On the **System Setup** submenu (on the **Configure Device** menu) at the printer control panel, temporarily turn the **Clearable Warnings and Auto Continue** settings off. Then print the job again.
Printing stops in the middle of the job.	• STOP might have been pressed. • Check that the power supplied to the printer is steady, and that it meets printer specifications. (See Electrical specifications.)
Print speed is slower than expected.	• Simplify the print job. • Add more memory to the printer. • Turn banner pages off. (See the network administrator.) • Note that slower speeds should be expected if you are printing narrow paper, printing from tray 1, using the HIGH 2 fuser mode, or have set Small Paper Speed to SLOW.
A printer control-panel setting is not taking effect.	• Check settings in the printer driver or program. (The printer driver and program settings override printer control-panel settings.)
The print job is not formatted correctly.	• Check that you are using the correct printer driver. (See the user guide.) • Check the program settings. (See the program online Help.) • Try a different font. • Downloaded resources might have been lost. You might need to download them again.
Media does not feed correctly or is damaged.	• Make sure that the media is loaded correctly and that the guides are not too tight or too loose against the stack of media. • If you are having problems printing custom-size paper, see the user guide. • If pages are wrinkled or curled, or if the image is skewed on the page, see Correcting print-quality problems.
Print-quality problems occur.	• Adjust the print resolution. (See the user guide.) • Check that Resolution Enhancement Technology (REt) is on. (See the user guide.) • Go to Correcting print-quality problems.

5. Does the printer select the correct trays?

YES →	**For other problems, check the Contents, the Index, or the printer-driver online Help.**
NO↓	
The printer pulls media from the wrong tray.	• Make sure that you have selected the correct tray. (See the user guide.) • Make sure that trays are correctly configured for size and type. (See the user guide.) Print a configuration page to see current tray settings. (See Configuration page.) • Make sure that the tray selection (Source) or Type in the printer driver or program is set correctly. (The printer driver and program settings override the printer control-panel settings.) • By default, media loaded in tray 1 will be printed first. If you do not want to print from tray 1, remove any media loaded in the tray or change the USE REQUESTED TRAY setting. (See Customizing tray 1 operation.) Change **TRAY 1 SIZE** and **TRAY 1 TYPE** to a setting other than **ANY**. • If you want to print from tray 1, but cannot select the tray in a program, see Customizing tray 1 operation.
An optional tray is not working correctly.	• Print a configuration page to verify that the tray is installed correctly and is functional. (See Configuration page.) • Configure the printer driver to recognize the installed tray. (See the printer driver online Help.) • Turn the printer off, and then turn the printer on again. • Verify that you are using the correct optional tray for the printer.
A message other than READY appears on the printer control-panel display.	• Go to Table 7-8. Interpreting control-panel messages.

Troubleshooting tools

Press the SELECT (✓) button to open the menus. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll through the menus that appear. The high-level menus appear in the following order:

• RETRIEVE JOB	• INFORMATION
• PAPER HANDLING	• CONFIGURE DEVICE
• DIAGNOSTICS	• SERVICE

Information pages

1. Press the SELECT (✓) button to open the **MENUS**.
2. Press the DOWN ARROW ▼ button to scroll to INFORMATION.
3. Press the SELECT (✓) button to select INFORMATION.
4. Press the DOWN ARROW (▼) button to scroll to a listed information page. The following pages are available:
   - Menu map
   - Configuration
   - Supplies status
   - File directory
   - Usage page
   - PCL and PS font list

5. Press the SELECT (✓) button to select and print the selected information page.

   The informational pages for the printer are also available in the embedded Web server. Not all information pages are discussed in detail in this manual. For more information, see the electronic user guide on the device installation CD. The following pages are available:

   - **Menu map**: A menu map shows how individual items are configured within the high-level (user-set values) menus. The last page of the menu map series contains instructions about how to use the control-panel buttons. **Print a menu map before changing printer settings or before replacing the formatter assembly.**
   - **Configuration page**: The configuration page lists printer configuration information. For example, the printer serial number and tray size settings appear on the configuration page. **Print a configuration page before servicing the printer to help restore values after servicing the printer**.
   - **Supplies status**: This page shows the levels of the printer supplies, a calculation of the number of pages that can be printed before the supplies are replaced, and cartridge-usage information.
   - **File directory**: This page provides information about files on the RAM disk or on the installed EIO disk drives and flash DIMMs if those memory accessories are installed.
   - **Usage page**: The usage page is only available if an optional hard disk is installed. It provides useful accounting information (for example, the number of pages of various paper sizes that have been used and data that can be used to calculate toner usage).
   - **PS or PCL font list**: This page lists the fonts that are installed in the printer memory. This page also lists fonts on an optional hard-disk accessory or flash DIMM if those memory accessories are installed.

Menu map

Use the menu map to help navigate through the printer submenus and select configuration settings. Printing a menu map is very helpful when you are changing numerous printer settings.

1. Press the SELECT (✓) button to open the menus.
2. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to INFORMATION, and then press the SELECT (✓) button.
3. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to MENU MAP, and then press the SELECT (✓) button.

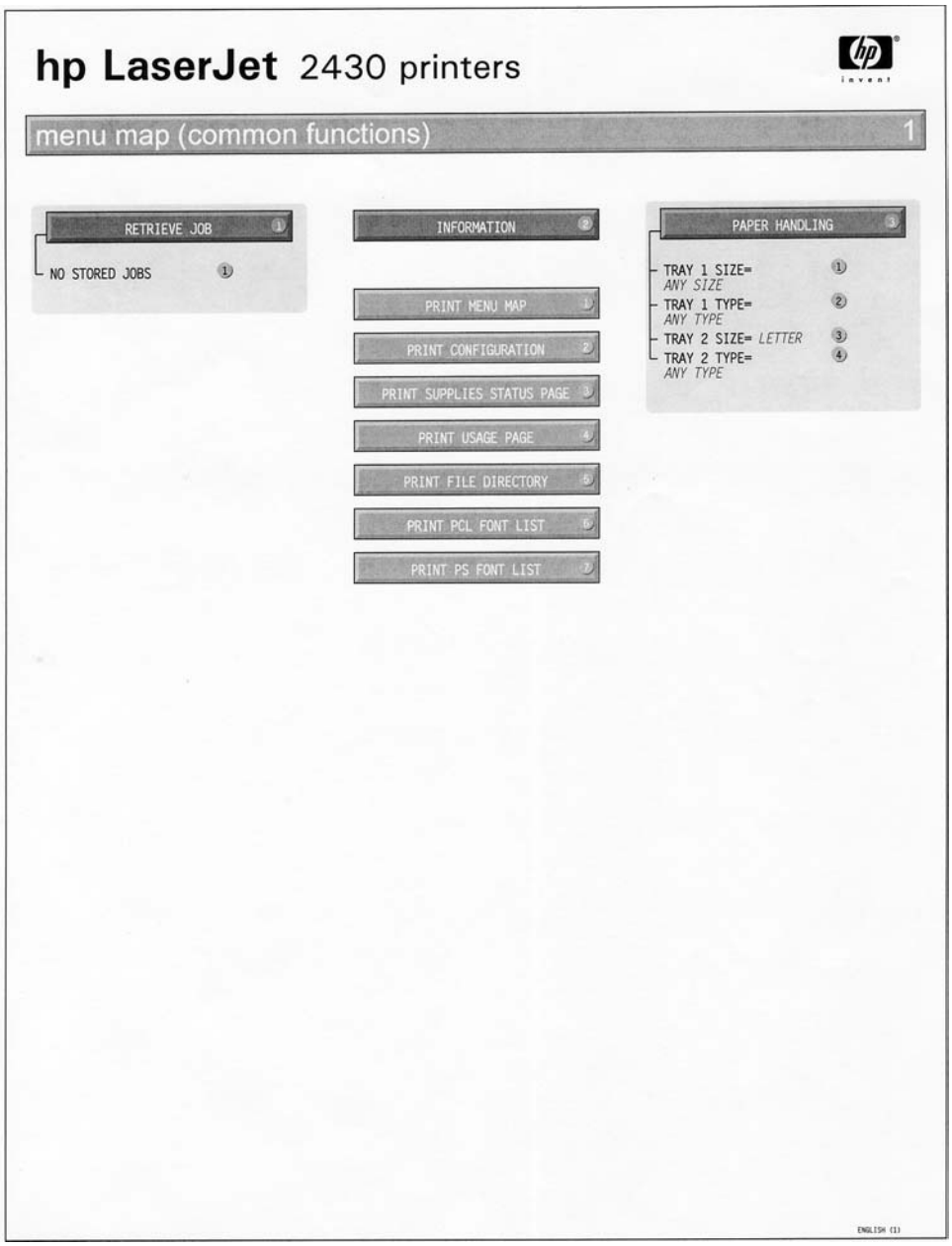


Figure 7-2. **Sample menu map page**

Configuration page

Use the configuration page to view current printer settings, to help troubleshoot printer problems, or to verify the installation of optional accessories, such as memory (DIMMs), trays, and printer languages. The content of the configuration page varies, depending on the options that are currently installed in the printer. To decode the service identification information on the configuration page, see Converting the Service ID to an actual date.

NOTE If an HP Jetdirect print server is installed, an HP Jetdirect configuration page also prints.

1. Press the SELECT (✓) button to open the menus.
2. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to INFORMATION, and then press SELECT (✓).
3. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to PRINT CONFIGURATION, and then press the SELECT (✓) button.

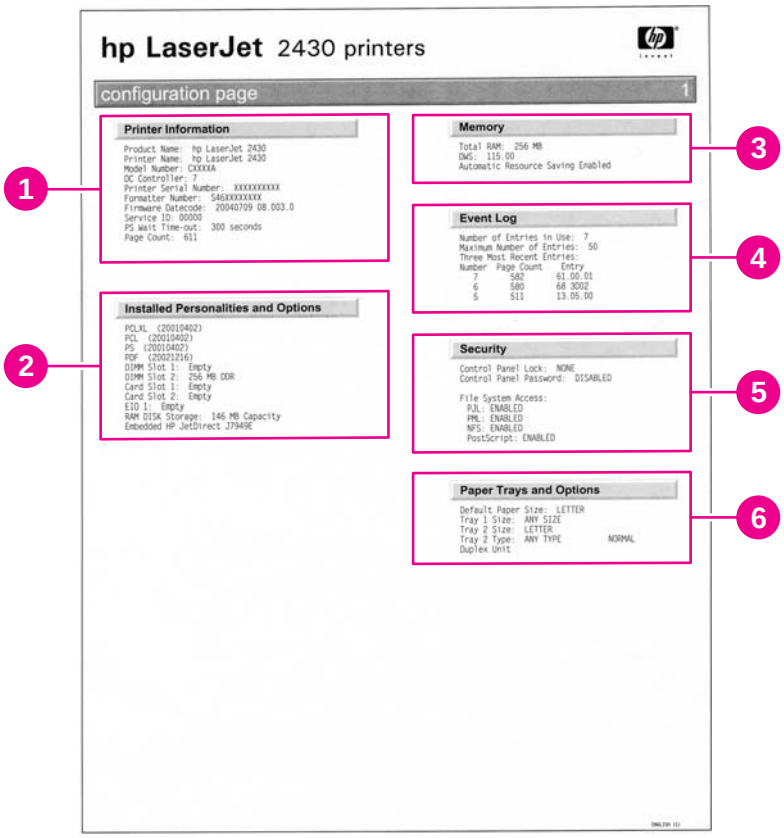


Figure 7-3. **Sample configuration page**

1 **Printer Information** Lists the serial number, page counts, printer number (dc controller revision), service ID (see Service ID), and other printer information.
2 **Personalities and options** Lists installed personalities and options (such as PS and PCL languages) and installed optional DIMM(s) or EIO accessories.
3 **Memory** Lists the printer memory and I/O buffering and resource saving information.
4 **Event log** Lists the three most recent event-log entries (numeric codes for printer events).
5 **Security** Lists the status of the control-panel lock, control-panel password, and any disk drives.
6 **Paper trays and options** Lists the size and type settings for all trays, and lists any optional paper-handling accessories that are installed.

Supplies status page

Use the supplies status page to obtain information about the print cartridge that is installed in the printer, the amount of life left in the print cartridge, and the number of pages and jobs that have been processed. The page also lets you know when you should perform the next preventive maintenance.

1. Press the SELECT (✓) button to open the menus.
2. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to INFORMATION, and then press the SELECT (✓) button.
3. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to PRINT SUPPLIES STATUS PAGE, and then press the SELECT (✓) button.

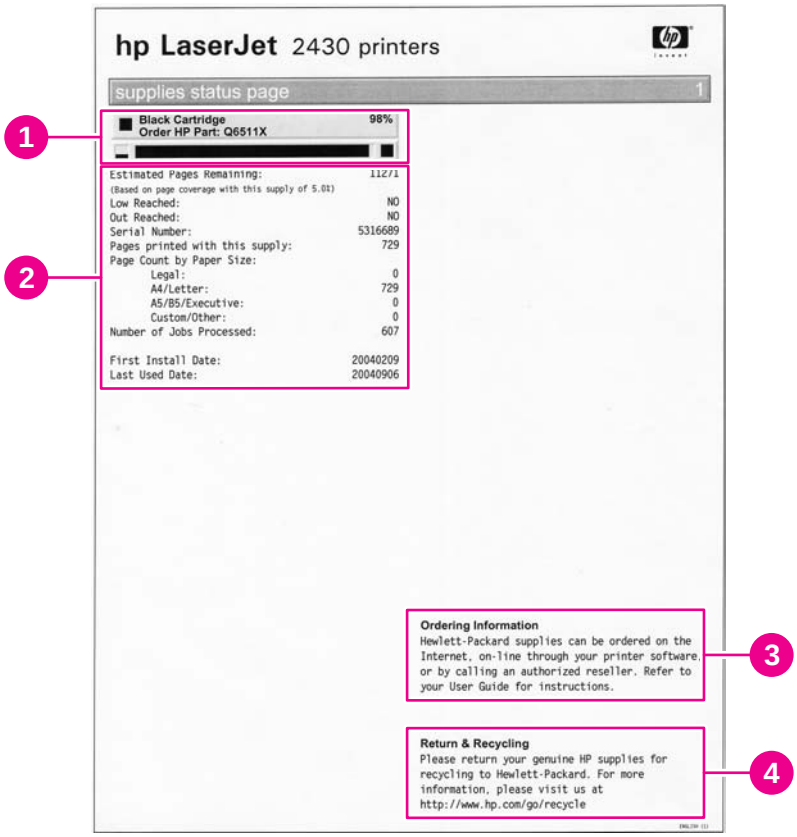


Figure 7-4. **Supplies status page**

1 **Cartridge information** Provides information about the amount of toner that is available in the print cartridge, and shows the print-cartridge part number and estimated number of pages that can be printed from the amount of toner in the cartridge

2 **Printing statistics** Lists statistics about the total number of pages and jobs that have been processed using this print cartridge, the first and last use date for the cartridge, and the print-cartridge serial number

3 **Supplies Web site** Lists the Web site for ordering supplies over the Internet

4 **Recycle Web site** Lists the Web site for information about returning used HP print cartridges

Embedded Web server

When the printer is directly connected to a computer, the embedded Web server is supported for Windows 95 and later. In order to use the embedded Web server with a direct connection, you must select the Custom installation option when you install the printer driver. Select the option to load Printer Status and Alerts. The proxy server is installed as part of the Printer Status and Alerts software.

When the printer is connected to the network (by using a HP Jetdirect print server EIO card), the embedded Web server is automatically available.

Use the embedded Web server to view printer and network status and to manage printing functions from your computer instead of from the printer control panel. The following are examples of what you can do through the embedded Web server:

- View printer status information
- Specify the type of media that is loaded in each tray
- Determine the remaining life for all supplies and order new supplies
- View and change tray configurations
- View and change the printer control panel menu configurations
- View and print internal pages
- Receive notification of printer and supplies events
- View and change the network configuration

To use the embedded Web server, you must have Microsoft Internet Explorer 4 or later, or Netscape Navigator 4 or later. The embedded Web server works when the printer is connected to an IP-based network. The embedded Web server does not support IPX-based printer connections. You do not have to have Internet access to open and use the embedded Web server.

Gaining access to the embedded Web server

In a supported Web browser on your computer, type the IP address for the printer. (To find the IP address, print a configuration page.)

NOTE After you navigate to the URL, you can bookmark it so that you can return to it quickly in the future.

The embedded Web server has three tabs that contain settings for and information about the printer: the **Information** tab, the **Settings** tab, and the **Network** tab. Click the tab that you want to view. See the following sections for more information about each tab.

Information tab

The **Information** tab contains the following pages.

- **Device Status**. Shows the printer status and the life that remains in HP supplies (0% indicates that a supply is empty). This page also shows the type and size of print media that is set for each tray. To change the default settings, click **Change Settings**.
- **Configuration page**. Shows the information that is contained on the printer configuration page.

- **Supplies Status**. Shows the life that remains in HP supplies (0% represents that a supply is empty). This page also provides supplies part numbers. To order new supplies, click **Order Supplies** in the **Other Links** area on the left side of the window. To visit this or any Web site, you must have Internet access.
- **Event log**. Shows a list of all printer events and errors.
- **Usage page**. Shows a summary of the number of pages the printer has printed, grouped by size and type (this page is only available if an optional hard disk is installed).
- **Device Information**. Shows the printer network name, address, and model information. To change these entries, click **Device Information** on the **Settings** tab.

Settings tab

Use the **Settings** tab to configure the printer from your computer. The **Settings** tab can be password protected. If the printer is on a network, always consult with the network administrator before changing settings on this tab.

The **Settings** tab contains the following pages.

- **Configure Device**. Use this page to configure all of the printer settings. This page contains the traditional printer menus: **Information**, **Paper Handling**, **Configure Device**, and **Diagnostics**.
- **Alerts**. (On networks only.) Use this page to establish e-mail alerts for various printer and supplies events.
- **E-mail**. (On networks only.) Use this page in conjunction with the Alerts page to set up incoming and outgoing e-mail, as well as to establish e-mail alerts.
- **Security**. Use this page to set a password that must be typed to gain access to the **Settings** and **Networking** tabs. Also use it to enable and disable certain features of the embedded Web server.
- **Other Links**. Use this page to add or customize a link to another Web site. The link you establish appears in the **Other Links** area on all embedded Web server pages. The following permanent links always appear in the **Other Links** area: HP Instant Support, Order Supplies, and Product Support.
- **Device Information**. Use this page to name the printer and assign an asset number to it. Use the name and e-mail address for the primary contact who will receive information about the printer.
- **Language**. Use this page to specify the language in which the embedded Web server information appears.

Networking tab

The network administrator uses this tab to control network-related settings for the printer when it is connected to an IP-based network. This tab does not appear if the printer is directly connected to a computer, or if the printer is connected to a network with anything other than an HP Jetdirect print server.

Other links

This section of the embedded Web server contains links that connect you to the Internet. You must have Internet access in order to use any of these links. If you use a dial-up connection and did not connect when you first opened the embedded Web server, you must connect before you can visit these Web sites. Connecting to the Internet might require that you close your Web browser and reopen it.

- **HP Instant Support** connects to the HP Web site to help you find solutions. This service analyzes your printer error log and configuration information to provide diagnostic and support information that is specific to your printer.
- **Order Supplies** connects to the HP Web site so that you can order genuine HP supplies, such as print cartridges and paper.
- **Product Support** connects to the support site for the HP LaserJet 2400 printer, where you can search for help.

Printer Status and Alerts software

Printer Status and Alerts is supported only for Windows 95 and later versions.

The Printer Status and Alerts software is available to users of both networked and directly connected printers. To use Printer Status and Alerts software with a directly connected computer, you must select the Custom installation option when you install the printer driver, and then select the option to install Printer Status and Alerts. For network connections, Printer Status and Alerts is installed automatically with the Typical software installation option.

Use this software to view the embedded Web server information for a particular printer. Printer Status and Alerts also generates messages on the computer that explain the status of the printer and print jobs. Depending on how the printer is connected, you can receive different messages.

- **Networked printers.** You can receive regular job status messages that appear every time a print job is sent to the printer or every time the print job is complete. You can also receive alert messages. These messages appear when you are printing to a particular printer if that printer experiences a problem. In some cases, the printer can continue to print (such as when a tray that is not being used is open, or a print cartridge is low). In other cases, a problem might prevent the printer from printing (such as when paper is out, or a print cartridge is empty).
- **Directly connected printers.** You can receive alert messages that appear when the printer experiences a problem but can continue printing or a problem that prevents it from printing. You can also receive messages that indicate that the print cartridge is low.

You can set alert options for a single printer that supports Printer Status and Alerts, or you can set alert options for all printers that support Printer Status and Alerts. For networked printers, these alerts only appear for your jobs.

Even if you set alert options for all printers, not all of the selected options will apply to all printers. For example, when you select the option to notify you when the print cartridges are low, directly connected printers that support Printer Status and Alerts generate a message when the print cartridges are low. However, none of the networked printers generate this message unless the alert affects a user-specific job.

To select status messages

1. Open Printer Status and Alerts in one of these ways:
   - Double-click the **Printer Status and Alerts** tray icon, which is near the clock in the Tray Manager.
   - On the **Start** menu, click **Programs**, click **Printer Status and Alerts**, and then click **Printer Status and Alerts**.
2. Click the **Options** icon on the left side of the window.
3. In the **For** field, select the printer driver for this printer, or select **All Printers**.
4. Clear the options for the messages that you do not want to appear, and select the options for the messages that you do want to appear.
5. In **Status check rate**, select how frequently you want the software to update the printer-status information that the software uses to generate the messages. The status check rate might not be available if the network administrator has restricted the rights to this function.

To view status messages and information

On the left side of the window, select the printer for which you want to see information. The information that is provided includes status messages, supplies status, and printer capabilities. You can also click the job history (clock) icon at the top of the window to view a list of previous jobs that were sent to the printer from the computer.

Control-panel menus

Use the control-panel menus to control various printer functions. For example, you can use the RESETS submenu to reset and restore most of the factory default printer settings quickly. Not all of the available menus are described in this manual.

Using control-panel menus

1. Press the SELECT (✓) button to open the menus.
2. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to the menu that you want, and then press the SELECT (✓) button.
3. Some menus might have several submenus. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to the submenu item that you want, and then press the SELECT (✓) button.
4. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to the setting, and then press the SELECT (✓) button. An asterisk (*) appears next to the selection on the display, indicating that it is now the default. Some settings change rapidly if the UP ARROW (▲) button or the DOWN ARROW (▼) button is held down.
5. Press PAUSE/RESUME to close the menu.

Resets submenu

To find the RESETS submenu, use the control panel to open the CONFIGURE DEVICE menu. Items on the Resets submenu are used to return settings to the defaults and to change settings such as **Sleep**.

The following section lists the settings and their possible values in the RESETS submenu. The default value for each setting is the one that has an asterisk (*) next to it.

Table 7-1. Resets submenu

Item	Values	Explanation
RESTORE FACTORY SETTINGS	No values available	Performs a simple reset and restores most of the factory (default) settings. This item also clears the input buffer for the active I/O. Restoring factory settings does not affect the network parameter settings on the optional HP Jetdirect print server. **CAUTION** Restoring memory during a print job cancels the print job.
Sleep	**OFF*** **ON**	Turns the Sleep mode on or off. The Sleep mode affects the printer in two ways: • Minimizes the amount of power that the printer consumes when it is idle. • Reduces wear on the electronic components in the printer (for example, it turns off the display backlight, although the display can still be read). The printer automatically leaves the Sleep mode when you send a print job, press a printer control panel button, open a tray, or open the top cover. You can set the amount of time that the printer remains idle before it enters the Sleep mode.

Diagnostics menu

Administrators can use this menu to isolate parts and to troubleshoot jam and print-quality issues.

The following section lists the settings and their possible values in the DIAGNOSTICS menu. The default value for each setting is the one that has an asterisk (*) next to it.

Table 7-2. Diagnostics menu

Item	Values	Explanation
PRINT EVENT LOG	No values available	Press the SELECT (✓) button to generate a list of the 50 most recent entries in the event log. The printed event log shows the error number, page count, error code, and description or personality that was in use when the event occurred.
SHOW EVENT LOG	No values available	Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll through the event log contents.
PAPER PATH TEST • PRINT TEST PAGE • SOURCE • DESTINATION • DUPLEX • COPIES	No values available	Generate a test page, which is useful for testing the paper-handling features of the printer.
	• PRINT TEST PAGE	Press the SELECT (✓) button to start the paper-path test using the source (tray), destination (output bin), duplex, and number of copies settings that you set in the other items on the **Paper Path Test** menu. Set the other items before selecting PRINT TEST PAGE.

	• SOURCE
	  • ALL_TRAYS
	  • TRAY 1
	  • *TRAY 2
	  • TRAY <N>
		Select the tray for the paper path that you want to test. You can select any tray that is installed. Select ALL_TRAYS to test the paper path for every tray. (Paper must be loaded in the selected trays.)

	• DESTINATION
	  • ALL BINS
	  • *STANDARD
	  • **OUTPUT**
	  • **OPTIONAL BIN 1**
		Select the output bin for the paper path that you want to test. You can select any output bin that is installed. Optional bins (stacker or stapler/stacker bin) must also be correctly configured. Select ALL BINS to test the paper path for every bin.

	• DUPLEX
	  • *OFF
	  • ON
		Determine whether or not the paper goes through the duplexer during the paper path test. This item is available only if the duplexer is installed.

	• COPIES
	  • ***1**
	  • **10**
	  • **50**
	  • **100**
	  • **500**
	***11050100500**
		Set how many sheets of media are used from each tray during the paper-path test. If you are testing the stapling function of the optional stapler/stacker (DESTINATION item **OPTIONAL BIN 1**), you must select **10** copies.

Service menu (service PIN codes)

Authorized HP service technicians can use this menu to gain access to printer settings that are reserved for service personnel. The service menu is protected by use of a personal identification number (PIN). When you select SERVICE from the list of menus, you are prompted to type an eight-digit PIN code.

NOTE The printer automatically exits the service menu after about one minute if no menu items are selected or changed.

Use the PIN code **11240002** for the HP LaserJet 2400 product.

1. Press the SELECT (✓) button to open the menus. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to SERVICE, and then press the SELECT (✓) button.
2. Press the UP ARROW (▲) button or the DOWN ARROW (▼) button until the first digit of the PIN code appears. Press the SELECT (✓) button to save that digit. Repeat this selection procedure until you have typed the entire eight-digit PIN code. You can use the LEFT ARROW (↩) button to return to a PIN digit. When the last digit is saved, the service submenu appears on the control-panel display.
3. Use the UP ARROW (▲) button or the DOWN ARROW (▼) button to scroll to the service-menu item that you want, and then press the SELECT (✓) button.

- **Clear event log**. Select this item to clear (reset to zero) the internal event log.
- **Total page count**. Select this item to set the total number of pages that have been printed to-date. Typically this is only required when a new formatter is installed.
- **Maintenance count**. Select this item to set the number of pages that have been printed since the last maintenance kit was installed or the total number of pages that have been printed on this printer if a maintenance kit has not yet been installed (during the first 200,000 pages).
- **Maintenance interval**. Select this item to specify the number of pages that can be printed before a maintenance-kit-required message appears on the control-panel display to indicate that a maintenance kit is required.
- **Serial number**. Select this item to update the serial number if you replace the formatter.
- **Service ID**. Select this item to specify the date when the printer was first used, rather than the date when a replacement formatter is installed. See Restoring the Service ID.
- **Cold reset**. Select this item to reset the default paper size when you replace the formatter or restore factory settings (see Resets submenu). When you replace a formatter or restore factory settings in a country/region that uses A4 as the standard paper size, use this item to reset the default paper size to A4 (see Cold reset). Letter and A4 are the only cold-reset values available.

Service ID

This information appears on the configuration page (see Configuration page), which eliminates the need for customers to keep paper receipts for proof of the warranty. Because the printer does not have an internal clock, the availability of the service ID date depends on the printer being connected to a source that can provide the date, in this case a time server on the same network as the printer. When the printer is not connected to a date source, the service ID is not available, and **00000** appears on the configuration page.

Restoring the Service ID

If you replace the formatter, the date is lost. Use this menu item to reset the value to the date that the printer was first used. The date format is YYDDD. Use the following procedure to calculate the date.

1. To calculate YY, subtract 1990 from the calendar year. For instance, if the printer was first used in 2002, calculate YY as follows: 2002 - 1990 = 12 (YY = 12).
2. To calculate DDD, use the following formula: 30 (calendar month - 1) + calendar day = DDD. If the calendar day is 31, use 30 instead. For instance, if the printer was first used on October 17, calculate DDD as follows:
    1. Subtract 1 from 10 (October is the tenth month of the year): 10 - 1 = 9.
    2. Multiply 9 by 30: 9 x 30 = 270.
    3. Add 17 to 270: 270 + 17 = 287 (DDD = 287).

Converting the Service ID to an actual date

You can use the printer Service ID number to determine whether the printer is still under warranty. Use the following procedure to convert the Service ID into the installation date.

1. Add 1990 to YY to determine the actual year that the printer was installed.
2. Divide DDD by 30 and add 1 to the remainder. The total is the month.
3. The remainder from the calculation in step 2 is the day of the month.

Using the Service ID 12287 as an example, the date conversion is as follows:

- 12 + 1990 = 2002, so the year is 2002.
- 287 divided by 30 = 9 with a remainder of 17. Add 1 to 9 to get 10 so the month is October.
- The remainder (from the above calculation) is 17, so that is the day of the month.
- The complete date is 17-October-2002.

A 6-day grace period is built into the date system.

Printer resets and power-on modes

The following sections describe the types of printer resets and power-on modes.

Cold reset

A cold reset unlocks menus that have been previously locked and sets all control panel menu items (including EIO settings) back to the factory defaults. However, it **does not** clear the values in the service menu (such as the serial number and page counts).

NOTE Before performing a cold reset, print a menu map and a configuration page (see Menu map and Configuration page). Use the information on the configuration page to reset any customer-set printer configuration values that the cold reset procedure changes.

To perform a cold reset

1. Turn the printer off.
2. Hold down the SELECT (✓) button, and then turn the printer on. Continue holding down the SELECT (✓) button until all three printer control-panel lights flash once and then remain on. This might take up to 10 seconds.
3. After the message SELECT LANGUAGE appears on the display, press the UP ARROW (▲) button or the DOWN ARROW (▼) button until COLD RESET is highlighted.
4. Press the SELECT (✓) button. The printer performs a cold reset and then continues its power-on sequence.
5. Check all I/O settings and reset any customer-set printer configuration values.

NVRAM initialization

CAUTION Initializing the NVRAM resets the serial number, the event log, the page counts, and the EIO card (initializing the NVRAM resets service menu values to factory defaults). Use the service menu to restore the serial number and page counts. Also reconfigure any computers that print to this printer so that the computers can recognize the printer. Initialize the NVRAM only when absolutely necessary. In most situations, use a cold reset rather than a NVRAM initialization to reset printer settings (this will retain the values in the service menu).

NOTE Before performing a NVRAM initialization, print a menu map and a configuration page (see Menu map and Configuration page). Use the information on the configuration page to reset any customer-set printer configuration values that the NVRAM initialization procedure changes. Take special note of the **total page count**, **maintenance count**, and the **serial number**.

To initialize NVRAM

1. Remove any installed accessories (for example, a stapler/stacker).
2. Turn the printer off.
3. Hold down the DOWN ARROW (▼) button, and then turn the printer on. Continue holding down the DOWN ARROW (▼) button until all three printer control-panel lights flash once and then remain on. This might take up to 10 seconds.
4. Press the UP ARROW (▲) button.
5. Press the PAUSE/RESUME button. The display should show **SKIP DISK LOAD**.
6. Press the UP ARROW (▲) button until NVRAM INIT is highlighted.
7. Press the SELECT (✓) button. The printer initializes NVRAM and then continues its power-on sequence.

Hard-disk initialization

CAUTION A hard-disk initialization erases and reformats the printer hard disk. Perform a hard-disk initialization only if an error code on the control panel indicates an EIO disk error. Always try initializing the hard disk before replacing it.

NOTE Before performing a hard-disk initialization, print a menu map and a configuration page (see Menu map and Configuration page). Use the information on the configuration page to reset any customer-set printer configuration values that the hard-disk initialization procedure changes.

To initialize the hard disk

1. Turn the printer off.
2. Hold down the PAUSE/RESUME button, and then turn the printer on. Continue holding down the PAUSE/RESUME button until all three printer control-panel lights flash once and then remain on. This might take up to 10 seconds.
3. Press the BACK ARROW (⮌) button. The display should show INITIALIZE DISK.
4. Press the SELECT (✓) button. The printer initializes the hard disk and continues its power-on sequence.

Power-on bypass

When the power is turned on the printer begins the power-on sequence. By performing a power-on bypass, you can cause the printer to resume the power-on sequence but not to recognize any installed EIO hard disk (skip disk-load procedure). This can be helpful in isolating EIO hard-disk errors.

You can also resume the power-on sequence but make the printer continuously print configuration pages until the PAUSE/RESUME button is pressed (self test procedure). This can be helpful if you need to verify the printer components that are installed by reviewing the information on the configuration page, but you cannot open the menus to print a configuration page.

Skip disk-load

1. Turn the printer off.
2. Hold down the DOWN ARROW (▼) button, and then turn the printer on. Continue holding down the DOWN ARROW (▼) button until all three printer control-panel lights flash once and then remain on. This might take up to 10 seconds.
3. Press the UP ARROW (▲) button and then press the PAUSE/RESUME button.
4. Press the UP ARROW (▲) button or the DOWN ARROW (▼) button until **SKIP DISK LOAD** is highlighted.
5. Press the SELECT (✓) button. The printer continues the power-on sequence but ignores an installed EIO hard disk.

Self test

1. Turn the printer off.
2. Hold down the SELECT (✓) button, and then turn the printer on. Continue holding down the SELECT (✓) button until all three printer control panel lights flash once and then remain on. This might take up to 10 seconds.
3. Press the UP ARROW (▲) button or the DOWN ARROW (▼) button until SELF TEST is highlighted.
4. Press the SELECT (✓) button. The printer continues the power-on sequence and begins to continuously printing configuration pages.
5. Press the PAUSE/RESUME button to exit the self test.

Save + Restore

When you exchange the formatter as part of the troubleshooting process, make sure that you move the CompactFlash parts from the old formatter to the new formatter. Do not perform a cold reset when the new formatter with the previous CompactFlash parts is installed. By not using a cold reset, the embedded LAN code can work to modify the network configuration to make it compatible with the new formatter. When a new formatter is installed, the Ethernet MAC Address changes because the MAC address is stored as part of the formatter and not stored in the CompactFlash. Some network reconfiguration might be necessary.

Test pages

Printing test pages helps you determine whether or not the printer engine and the formatter are functioning.

Engine-test page

To verify that the printer engine is functioning, print an engine-test page. To print an engine-test page, press the engine-test-page switch on the formatter (see callout 5 in Figure 7-8. Sensors and switches, HP LaserJet 2400 series).

The test page should have a series of vertical lines. The test page prints from the last tray that you used to print unless the printer has been turned off, and then turned on again since the most recent print job. If the printer has been turned off and then on again since the most recent print job, then the page will print from tray 2. The printer will continuously print test pages as long as the test-page switch is depressed. The printer will not print a test page if it is in Sleep mode.

NOTE A damaged formatter might interfere with the engine test. If the engine test page does not print, try removing the formatter and performing the engine test again. If the engine test is then successful, the problem is in the formatter, the control panel, or the cable that connects them.

Formatter test page

To verify that the formatter is functioning, print a configuration.

1. Press the SELECT (✓) button to open the menus.
2. Press the DOWN ARROW (▼) button to scroll to INFORMATION.
3. Press the SELECT (✓) button to select INFORMATION.
4. Press the DOWN ARROW (▼) button to scroll to PRINT CONFIGURATION.
5. Press the SELECT (✓) button to select PRINT CONFIGURATION.

Interface troubleshooting

The following sections provide instructions for interface troubleshooting.

Communications checks

NOTE Communication problems are normally the customer's responsibility. Time spent attempting to resolve these problems might not be covered by the Hewlett-Packard product warranty. Refer the customer to the network administrator for assistance in troubleshooting network problems.

If the printer is not connected directly to a Windows or MS-DOS-based host, see EIO troubleshooting.

CAUTION HP LaserJet printers are not designed to work with mechanical switch-box products that don't have correct surge protection. These devices generate high transient voltages that cause permanent damage to the formatter. This circumstance is not covered by the Hewlett-Packard product warranty.

Computer direct connect (parallel) test

After the printer is installed, verify communications by bypassing the Windows driver between the printer and the IBM-compatible computer. Type the following information at the MS-DOS prompt:

`C:\DIR>LPT1 Enter` (for printing to parallel port #1)

The printer should print a directory listing of the C:\ directory. You might need to press SELECT (✓) on the control panel to print the data that is in the buffer.

EIO troubleshooting

If the printer contains an optional HP Jetdirect print server, and you cannot communicate with the printer over the network, verify that the print server is operating. Print a configuration page (see Configuration page). If the Jetdirect card does not appear under "Installed personalities and options" on the configuration page, reseat or replace the Jetdirect EIO card. See the troubleshooting section of the **HP Jetdirect Print Server Software Administrators Guide.**

When the HP Jetdirect print server is installed correctly, print a Jetdirect page (this page automatically prints when a Jetdirect print server is installed and a configuration page is printed). See Jetdirect page. The Jetdirect page contains valuable network-related information about the printer.

If the host system and printer are still not communicating, replace the formatter (see Formatter) and the EIO card, and then reconfigure the printer.

The following illustration shows the contents of the Jetdirect page.

Jetdirect page

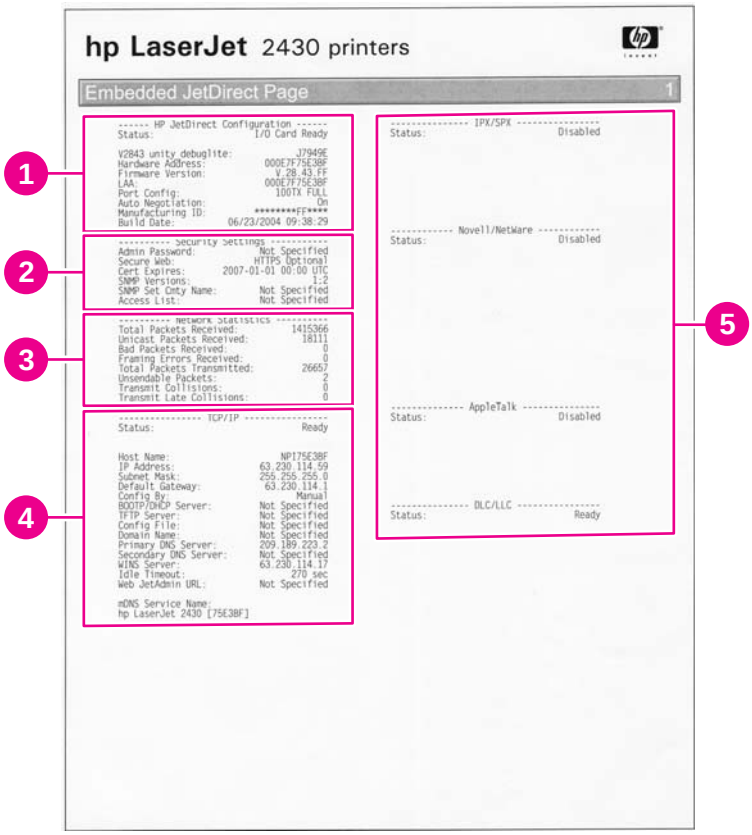


Figure 7-5. **Jetdirect page**

1 **HP Jetdirect Configuration** If the EIO Jetdirect card is installed correctly and the printer completes its internal diagnostics, the **I/O CARD READY** status message prints. If communication is lost, an **I/O NOT READY** status message prints, followed by a two-digit error code. See the **HP Jetdirect Network Interface Configuration Guide** for further details and recommended action.

2 **Network Statistics** This block indicates that network activity has been occurring. Bad packets, framing errors, unsendable packets, and collisions should be minimal. If a high percentage (greater than one percent) of these occur, contact the network administrator. All of the statistics are set to zero when the printer is turned off.

3 **TCP/IP** In this block, the default IP address is "192.0.0.192." You can operate the printer by using this default address. The error message **ARP DUPLICATE ADDRESS** might appear in this block. This is an acceptable error code if the TCP/IP protocol is not being used. Check with the network administrator to determine the correct IP address for the printer. To configure the printer's IP address, go to the control panel EIO menu, select **CFG NETWORK=YES**, select **CFG TCP/IP=YES**, and then select **BOOTP=NO**.

4 **Novell/NetWare** This block should state the name of the Novell printer server to which the printer is connected. If the node name reads "NPI**xxxxxx**" (where **xxxxxx** = the last six digits of the EIO LAN address), the EIO card has not been configured for a Novell server. This could indicate that the card is operating under protocol other than Novell. Check with the network administrator to determine what node name might be appropriate.

Solving general printing problems

In addition to the issues and solutions that are listed in this section, see Troubleshooting common Macintosh problems if you are using a Macintosh computer, and see Troubleshooting common PostScript problems if you are using the PS driver.

Printer selects media from the wrong tray.

Cause	Solution
The tray selection in the software program might be incorrect.	For many software programs, the paper tray selection is found on the **Page Setup** menu within the program. Remove any media in other trays to make the printer select from the correct tray. For Macintosh computers, use the HP LaserJet Utility to change the priority of the tray.
The configured size does not match the size of the media that is loaded in the tray.	Through the control panel, change the configured size to match the size of the media that is loaded in the tray.

Printer does not pull media from tray.

Cause	Solution
The tray is empty.	Load media in the tray.
The paper guides are set incorrectly.	To set the guides correctly, see the user guide. For the 500-sheet tray, make sure that the leading edge of the media stack is even. An uneven edge can prevent the lift plate from rising.

Paper curls when it exits the printer.

Cause	Solution
The paper curls when it exits to the top output bin.	Open the rear output bin to allow the paper to exit in a straight path through the printer. Turn over the paper that you are printing on. Reduce the fusing temperature to reduce the curling. (See Selecting the correct fuser mode.)

First sheet of media jams in the print-cartridge area.

Cause	Solution
A combination of high humidity and high temperature is affecting the media.	Adjust the printer for high humidity and high temperature conditions.

Print job is extremely slow.

Cause	Solution
The job might be very complex. The maximum speed of the printer cannot be exceeded even when more memory is added. Printing speeds might be automatically reduced when printing on custom-sized media. **Note:** Slower speeds are expected when printing on narrow paper, when printing from tray 1, or when using the HIGH 2 fuser mode.	Reduce the complexity of the page or try adjusting the print-quality settings. If this problem occurs frequently, add memory to the printer.
You are printing a PDF or PostScript (PS) file but are using a PCL printer driver.	Try using the PS printer driver rather than the PCL printer driver. (You can usually do this from a software program.)
In the printer driver, **Optimize for:** is set to card stock, heavy, rough, or bond paper.	In the printer driver, set the type to plain paper (see Printing by type and size of media (locking trays)). **Note**: If you change the setting to plain paper, the print job will print faster. However, if you are using heavy media, for best results leave the printer driver set to heavy even though printing might be slower.

Print job prints on both sides of the paper.

Cause	Solution
The printer is set for duplexing.	See the user guide to change the setting, or see the online Help.

Print job contains only one page but the printer processes the back side of the page as well (the page comes part of the way out, and then goes back into the printer).

Cause	Solution
The printer is set for duplexing. Even if the print job contains only one page, the printer also processes the back side.	See the user guide to change the setting, or see the online Help. Do not try to pull the page out of the printer before duplexing is complete. Jamming might result.

Pages print, but are totally blank.

Cause	Solution
The sealing tape might still be in the print cartridge.	Remove the print cartridge and pull out the sealing tape. Reinstall the print cartridge.
The file might have blank pages.	Check the file to make sure that it does not contain blank pages.

The printer prints, but the text is wrong, garbled, or incomplete.

Cause	Solution
The printer cable is loose or defective.	Disconnect the printer cable and reconnect it. Try a print job that you know works. If possible, attach the cable and printer to another computer and try a print job that you know works. Finally, try a new cable.
The printer is on a network or sharing device and is not receiving a clear signal.	Disconnect the printer from the network and use a parallel or USB cable to attach it directly to a computer. Print a job that you know works.
The wrong driver was selected in the software.	Check the software printer-selection menu to make sure that an HP LaserJet 2400 series printer is selected.
The software program is malfunctioning.	Try printing a job from another program.

The printer does not respond when you select Print in the software.

Cause	Solution
The printer is out of media.	Add media.
The printer might be in the manual-feed mode.	Change the printer from manual-feed mode.
The cable between the computer and the printer is not connected correctly.	Disconnect and reconnect the cable.
The printer cable is defective.	If possible, attach the cable to another computer and print a job that you know works. You might also try using a different cable.
The wrong printer was selected in the software.	Check the software printer selection menu to make sure that an HP LaserJet 2400 Series printer is selected.
The printer might have a jam.	Clear any jams, paying careful attention to the duplexer area (if your model has a duplexer). See Clearing jams.
The software for the printer is not configured for the printer port.	Check the software printer-selection menu to make sure that it is using the correct port. If the computer has more than one port, make sure that the printer is attached to the correct one.
The printer is on a network and is not receiving a signal.	Disconnect the printer from the network and use a parallel or USB cable to attach it directly to a computer. Reinstall the printing software. Print a job that you know works. Clear any stopped jobs from the print queue.
The printer is not receiving power.	If no lights are on, check the power-cord connections. Check the power switch. Check the power source.

The printer does not respond when you select Print in the software.

Cause	Solution
The printer is malfunctioning.	Check the control-panel display for messages and lights to determine if the printer is indicating an error. Note any message and see Table 7-8. Interpreting control-panel messages.

Clearing jams

Occasionally, media can become jammed during a print job. The following are some of the causes:

- Trays are loaded incorrectly or overfilled.
- Tray 2 or tray 3 is removed during a print job.
- The top cover is opened during a print job.
- The media that is being used does not meet HP specifications.
- The media that is being used is outside of the supported size range (see Media specifications).

Avoiding jams

Use this table to help avoid specific types of jams.

Table 7-3. Common causes of jams

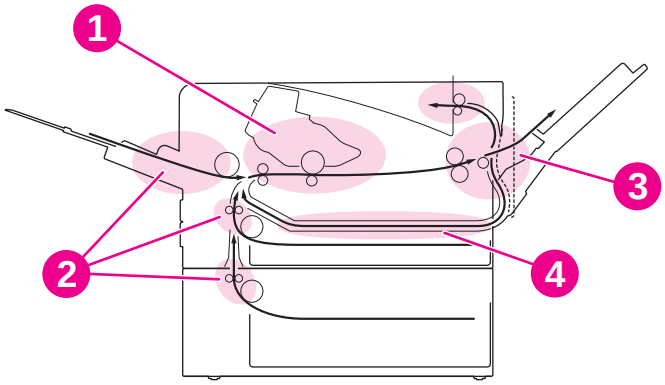
Cause	Solution
The print media does not meet HP recommended media storage and use specifications.	Use only media that meets HP specifications. See chapter 1 in this manual or the **HP print media guide** (available at http://www.hp.com/support/ljpaperguide) for media recommendations.
A supply item is installed incorrectly, which causes repeated jams.	Verify that the print cartridge and the fuser are correctly installed.
You are reloading paper that has already passed through a printer or copier.	Do not use media that has been used previously in a printer or copier.
An input tray is loaded incorrectly.	Remove any excess media from the input tray. Make sure that the stack of media fits below the indicators inside of the tray.
The print media is skewed.	The tray guides are not adjusted correctly. Adjust the guides to hold the media firmly in place without bending it. If media heavier than 120 g/m^2 (32 lb) is loaded into tray 2, tray 3, or tray 4, the media might skew.
The print media is binding or sticking together.	Remove the media and flex it, rotate it 180 degrees, or flip it over. Reload the media into the tray. Do not fan media.
The page is removed before it settles into the output bin.	Wait until the page completely exits the output delivery assembly before you attempt to remove it.
When you are using the duplex print feature, the page is removed before the second side of the document is printed.	Print the document again. During the duplex operation, the page will partially protrude from the output delivery assembly (when the page is being reversed). Do not attempt to grab or remove the page. Wait until the page completely exits the output delivery assembly before you attempt to remove it.
The print media is in poor condition.	Replace the print media.

Table 7-3. Common causes of jams (continued)

Cause	Solution
The print media is not picked up by the internal rollers from tray 2, tray 3, or tray 4.	Remove the top sheet of media. If the media is heavier than 120 g/m^2 (32 lb), it might not be picked up correctly from the tray.
The print media has rough or jagged edges.	Replace the media.
The print media is perforated or embossed.	If the media does not separate easily, you might need to feed single sheets from tray 1.
The printer supply items have reached the end of their useful life.	Check the printer control panel for messages that prompt you to replace supplies, or print a supplies status page to verify the remaining life of the supplies.
The print media was not stored correctly.	Replace the print media. The media should be stored in its original packaging and in a controlled environment.

Typical jam locations

The following illusration shows the four locations at which jams can occur.



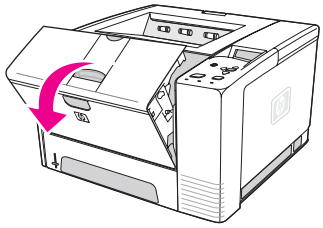
1 Print-cartridge area (see Clearing jams in the print-cartridge area)
2 Input-tray areas (see Clearing jams in the input trays)
3 Output-bin areas (see Clearing jams in the output areas)
4 Duplexer area (applies only to models that include a duplexer) (see Clearing jams in the duplexer area)

NOTE Find and remove the jammed media by using the instructions that are provided in this section. If the location of the jam is not obvious, look first in the print cartridge area. Be sure to remove all torn pieces of media that remain in the printer. Loose toner might remain in the printer after a jam. This should clear after a few sheets have been printed.

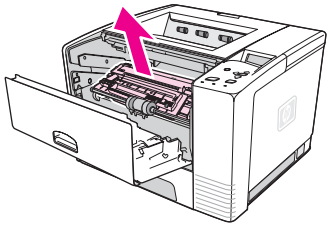
Clearing jams in the print-cartridge area

Jams in this area might result in loose toner on the page. If you get any toner on your clothes or hands, wash them in cold water. (Hot water will set the toner into the fabric.)

1. Open the top cover.



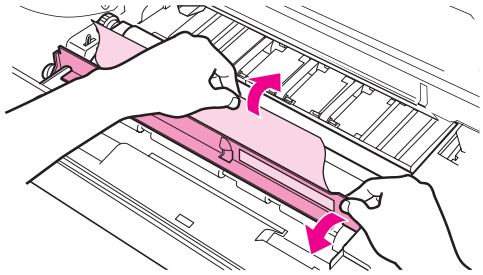
2. Remove the print cartridge.



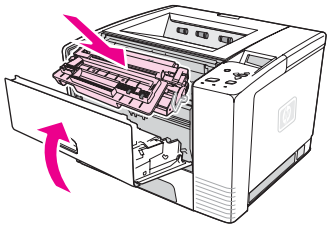
CAUTION To prevent damage, do not expose the print cartridge to light for more than a few minutes. Place a piece of paper over the top of the print cartridge to shield it while it is out of the printer.

3. Carefully lift up the registration plate. If the leading edge of the print media is visible, gently pull the media toward the rear of the printer to remove it from the printer.

   If the media is difficult to remove or has already entered the output area, remove the jam as described in Clearing jams in the output areas.



4. When the jammed media has been removed, gently flip down the registration plate. Reinstall the print cartridge and shut the top cover.

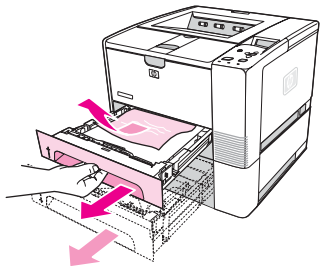


NOTE If the print cartridge is difficult to reinstall, make sure that the registration plate has been flipped back down into position and that you have pushed the print cartridge firmly into place. If the Attention light does not go out, jammed media remains inside the printer. Check the paper-feed and rear-output areas for jams. For printers that include a built-in duplexer, check the duplexer area.

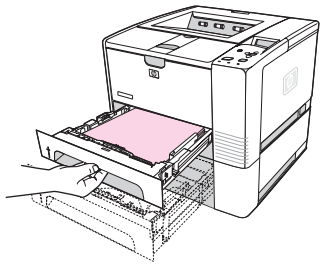
Clearing jams in the input trays

NOTE If paper has entered the print cartridge area, follow the instructions in Clearing jams in the print-cartridge area. It is easier to remove paper from the print cartridge area than from the paper-feed area.

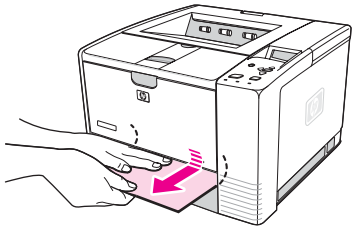
1. Slide out tray 2 or tray 3 to expose the jam.



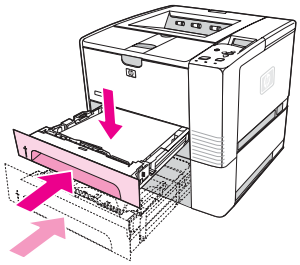
2. Remove any misfed media by pulling it out by the visible edge. Make sure that all of the media is aligned in the tray (see the user guide). If tray 3 is installed, remove any misfed media and make sure that all of the media is aligned in that tray.



3. If the media is jammed in the paper-feed area and cannot be reached from the print-cartridge area, grasp the sheet and carefully pull it free from the printer.



4. For tray 2, push the stack down to lock the metal paper-lift plate into place. For both trays, slide the tray into the printer.



5. To reset the printer and continue printing, press ✓ (SELECT button).

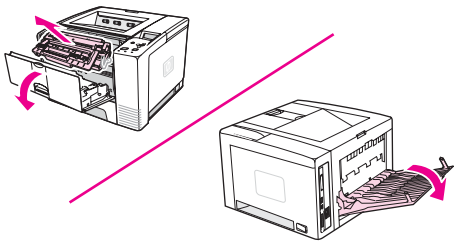
NOTE If the Attention light does not go out, jammed media remains inside the printer. Check the paper-feed and rear-output areas for jams. For printers that include a built-in duplexer, check the duplexer area.

Clearing jams in the output areas

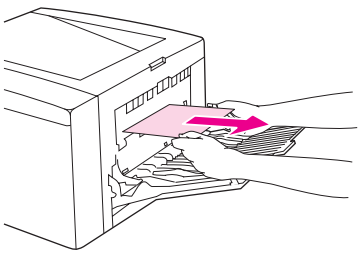
Jams in this area might result in loose toner on the page. If you get any toner on your clothes or hands, wash them in cold water. (Hot water will set the toner into the fabric.)

1. Open the top cover and remove the print cartridge. Open the rear output bin. (The rear output bin might be hard to open. If necessary, pull hard to open it.)

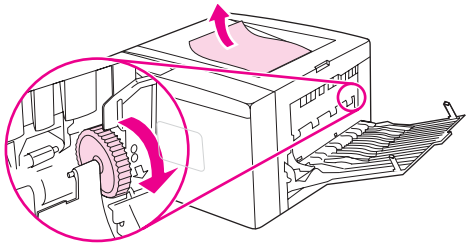
NOTE It is necessary to open the top cover in order to release the rear output gears and to remove the media easily.



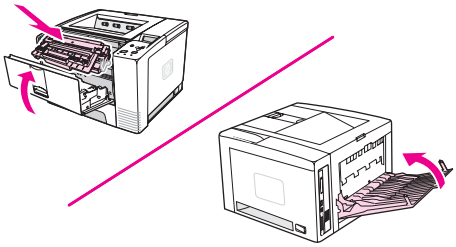
2. If the media is visible from the rear output opening, carefully use both hands to pull the leading edge out of the printer. Carefully remove the rest of the jammed media from the printer.



3. If the media is almost completely visible from the top output bin, pull the remaining media carefully out of the printer. If the leading edge is not visible or is barely visible in the print-cartridge area, open the rear output bin all the way. To do this, push the bin door slightly forward and use your finger to disengage the grill at the base. Turn the jam-clearing wheel to move the media out of the printer.



4. Reinstall the print cartridge. Close the top cover and the rear output bin.

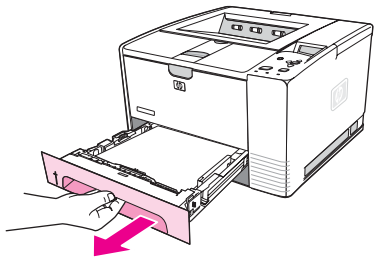


NOTE If the print cartridge is difficult to reinstall, make sure that the registration plate has been flipped back down into position and that you have pushed the print cartridge firmly in place. If the Attention light does not go out, jammed media remains inside the printer. Check the paper-feed and rear-output areas for jams. For printers that include a built-in duplexer, check the duplexer area.

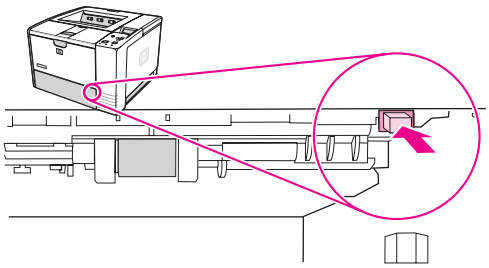
Clearing jams in the duplexer area

This procedure applies only to printers that include a duplexer.

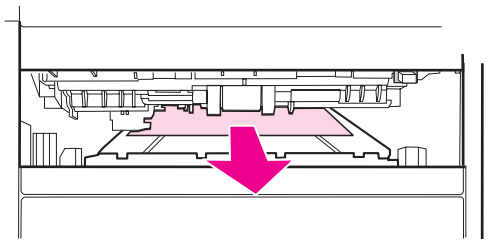
1. Remove tray 2 from the printer.



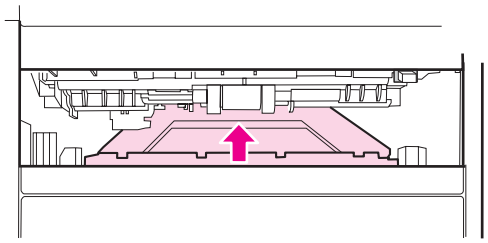
2. Push the green button on the right side of the front of the tray 2 opening to open the paper-access plate.



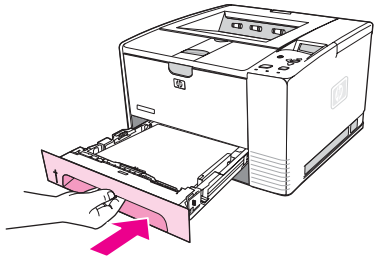
3. Reach in and pull out the jammed paper.



4. Push the bottom of the paper-access plate back up until it clicks into place on both sides (both sides need to be engaged).



5. Reinstall tray 2.



NOTE If the Attention light does not go out, jammed media remains inside the printer. Check the paper-feed and rear-output areas for jams.

Media handling problems

If media is feeding incorrectly, use the information in this section to identify and resolve the problem.

Multiple pages feed

Table 7-4. Causes for multiple pages feeding

Cause	Solution
The tray 1 separation pad is worn.	Replace the separation-pad assembly.
Too much media (particularly envelopes) is loaded in tray 1.	Remove some of the media and resend the print job.
The separation rollers in the tray are worn or damaged	Replace the rollers.
The media edges are locked together.	Flex the media stack before loading it into the printer. **Do not** fan the media.
Tray 2 is defective.	Replace the tray.
The spring pushing the separation roller or pad is defective.	Replace the spring.

Pages are wrinkled or folded

Table 7-5. Causes for wrinkled or folded paper at the paper-path entrance

Cause	Solution
The feed rollers or registration rollers are dirty or defective.	Replace the affected rollers.
The paper path contains foreign substances or dirt.	Remove any foreign substances or dirt from the paper path.
The cartridge shutter open/close mechanism is damaged. (This can cause jams in which the media is crumpled into an accordion fold under the print cartridge.)	The shutter in the print cartridge should open as you insert the cartridge. If a shutter does not open, replace the print cartridge.
The registration assembly is defective.	If the registration arm is dirty, clean it. If the arm is scarred or worn, replace the registration assembly (see Registration assembly.

Table 7-6. Causes for wrinkled or folded paper at the paper-path exit

Cause	Solution
The fuser inlet guide is dirty.	Replace the fuser (see Fuser).
The fuser pressure roller is dirty or damaged.	Run several cleaning pages through the printer. If the problem persists, replace the fuser (see Fuser).

Pages are skewed

Table 7-7. Causes for skewed pages

Cause	Solution
Paper dust or dirt has accumulated on the tray feed roller or separation roller.	Clean or replace the rollers.
The tray feed roller and separation roller are worn irregularly.	Replace the affected roller.
The registration assembly is defective.	Replace the registration assembly (see Registration assembly).
Tray 2 is defective.	Replace tray 2.

Understanding printer messages

Printer messages that appear on the control-panel display relay the normal status of the printer (such as **Processing...**) or an error condition (such as **CLOSE TOP COVER**) that needs attention. Table 7-8. Interpreting control-panel messages lists the most common messages that require attention or that might raise questions. Messages are listed in alphabetical order first, with numeric messages at the end of the list.

Using the printer online Help system

This printer features an online Help system on the control panel that provides instructions for resolving most printer errors. Certain control-panel messages alternate with instructions about gaining access to the online Help system.

Whenever a message alternates with **For help press**, press **?** (HELP button) to view the help and use ▲ (UP button) and ▼ (DOWN button) to scroll through the message.

To exit the online Help system, press MENU.

Resolving persistent messages

When some messages appear (for example, requests to load a tray or a message that a previous print job is still in the printer memory), you can press ✓ (SELECT button) to print, or to press STOP to clear the job and eliminate the message.

Table 7-8. Interpreting control-panel messages

Control panel message	Event log error message	Description	Recommended action
10.32.00 **UNAUTHORIZED SUPPLY** alternates with **For help press ?**		The printer has detected that a printer supply is not a genuine HP supply.	This message appears until you install an HP supply or press the override button ✓ (SELECT button). If you believe that you purchased an HP supply, go to http://www.hp.com/go/anticounterfeit. Any printer repair required as a result of using non-HP supplies or unauthorized supplies is not covered under the printer warranty.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
10.XX.YY SUPPLY **MEMORY ERROR** alternates with **For help press ?**		An error has occurred in one or more of the printer supplies. **XX description** 00 = memory is defective 01 = memory is missing **YY description** 00 = print cartridge is missing or defective	1. Turn the printer off, and then turn the printer on to clear the message. 2. If the message persists, open the top cover, remove the print cartridge, and then reinstall it. 3. If the message persists, install a new HP print cartridge. 4. If the message persists, check the connection between the ECU and the memory chip on the print cartridge. 5. If the message persists, replace the memory chip cable and contact assembly. 6. If the message persists, replace the ECU (see ECU).
22 PARALLEL I/O **BUFFER OVERFLOW** alternates with **To continue press ✓**		Too much data was sent to the parallel port.	1. Check for a loose cable connection and be sure to use a high-quality cable. Some non-HP parallel cables might be missing pin connections or might otherwise not conform to the IEEE-1284 specification. 2. This error can occur if the driver you are using is not IEEE-1284 compliant. For best results, use an HP driver that came with the printer. 3. Press ✓ (SELECT button) to clear the error message. (The job will not be printed.) 4. If the message persists, replace the EIO card.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
50.X FUSER ERROR **For help press ?**		A fuser error has occurred. **X Description** 1 low fuser temperature 2 fuser warmup service 3 fuser over-temperature 4 faulty fuser 5 incorrect fuser is installed 6 open fuser circuit	1. Turn the printer off, and then turn the printer on again. 2. If the message persists, turn the printer off and allow it to cool down. 3. Verify that the correct model of fuser is installed. 4. Verify that the correct voltage fuser is installed. 5. Reinstall the fuser, and check the connection between the fuser and the printer. Replace the connector if it is damaged. 6. If the message persists, replace the fuser (see Fuser). 7. If the message persists, replace the ECU (see ECU). 8. If the message persists, replace the power supply (see Power supply).
CARD SLOT <X> **NOT FUNCTIONAL** alternates with **<Current status message>**		The CompactFlash card in slot X is not working correctly.	1. Turn the printer off. 2. Make sure that the card is inserted correctly. 3. If the message persists, replace the CompactFlash card. 4. If the message persists, replace the formatter (see Formatter).
13.XX.YY JAM IN **<Location>**		A jam has occurred in the specified location.	Remove jammed media from the specified location. See Clearing jams. If the message persists after all jams have been cleared, a sensor might be stuck or broken.
20 INSUFFICIENT MEMORY alternates with **To continue press ✓**		The printer received more data than can fit in its available memory. You might have tried to transfer too many macros, soft fonts, or complex graphics.	Press ✓ (SELECT button) to print the transferred data (some data might be lost), and then simplify the print job or install additional memory.
21 PAGE TOO COMPLEX alternates with **To continue press ✓**		The data (dense text, rules, raster or vector graphics) that was sent to the printer is too complex.	1. Press ✓ (SELECT button) to print the transferred data (some data might be lost). 2. If this message appears often, simplify the print job or install additional memory.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
22 EIO X **BUFFER OVERFLOW** alternates with **To continue press ✓**		Too much data was sent to the EIO card in the specified slot [X]. An improper communications protocol might be in use. **Note:** EIO 0 is reserved for the HP Jetdirect embedded print server.	1. Press ✓ (SELECT button) to clear the message. (The job will not be printed.) 2. Check the host configuration. 3. If this error message persists, replace the EIO card.
22 USB I/O **BUFFER OVERFLOW** alternates with **To continue press ✓**		Too much data was sent to the USB port.	Press ✓ (SELECT button) to clear the error message. (The job will not be printed.)
40 EIO X BAD **TRANSMISSION** alternates with **To continue press ✓**		The connection has been broken between the printer and the EIO card in the specified slot [X]. **Note:** EIO 0 is reserved for the HP Jetdirect embedded print server.	Press ✓ (SELECT button) to clear the error message and continue printing.
41.3 UNEXPECTED **SIZE IN TRAY X** alternates with **LOAD TRAY XX** **[TYPE][SIZE]**		This is typically caused if two or more sheets stick together in the printer or if the tray is not correctly adjusted.	1. Reload the tray with the correct paper size. 2. Press ✓ (SELECT button) to scroll to **TRAY XX SIZE=**. Reconfigure the size in a tray so that the printer will use a tray that contains the size that is required for the print job. 3. If the error does not clear, turn the printer off, and then turn the printer on. 4. If the message persists, verify that sensors are operating and the sensor flags can move freely. 5. Replace the ECU (see ECU).
41.X ERROR **For help press ?** alternates with **41.X ERROR** **To continue press ✓**		A temporary printing error occurred.	1. Press ✓ (SELECT button). The page containing the error automatically reprints if jam recovery is enabled. 2. Turn the printer off, and then turn the printer on again. 3. If the message persists, or if these errors becomes a frequent problem, replace the ECU (see ECU).

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
49.XXXXX ERROR alternates with **To continue** **turn off then on**		A critical firmware error has occurred.	1. Press CANCEL JOB to clear the print job from the printer memory. 2. Turn the printer off, and then turn the printer on again. 3. Go to http: www.hp.com/support/lj2410, www.hp.com/support/lj2420, or www.hp.com/support/lj2430. Click **Download Drivers and Software**. Check for the latest firmware image version at the bottom of the page. If this firmware image is newer than the one installed on the printer and the printer can receive a firmware update, download the newer firmware upgrade. Not all printer models can receive firmware upgrades. 4. Try printing a job from a different software program. If the job prints, go back to the first program and try printing a different file. If the message appears only with a certain software program or print job, contact the software vendor for assistance.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
49.XXXXX ERROR alternates with **To continue** **turn off then on**		A critical firmware error has occurred.	1. After performing the actions listed in the preceding item, if the message persists when using different software programs and attempting specific print jobs, disconnect all cables that connect the printer to the network or a computer. 2. Turn the printer off. 3. Remove all memory DIMMs or third-party DIMMs from the printer. (Do not remove the firmware DIMM in slot J1.) 4. Remove all of the EIO devices from the printer. 5. Turn the printer on. 6. If the error message disappears, reinstall each DIMM and EIO device individually, making sure to turn the printer off and then on again as you install each device. To replace a DIMM, see. 7. Replace the DIMM or EIO device that caused the error message. 8. Remember to reconnect all of the cables that connect the printer to the network or computer. 9. If this error message persists, replace the firmware DIMM. 10. Replace the formatter (see Formatter).
51.XY ERROR **For help press ?** alternates with **To continue** **turn off then on**		A temporary printing error occurred.	1. Press the SELECT (✓) button to continue. 2. Turn the printer off and then on. 3. Reseat the connectors between the laser/scanner and ECU (J83 and J84). 4. Replace the laser/scanner assembly (see Laser/scanner. 5. Replace the ECU (see ECU).

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
52.XY ERROR **For help press ?** alternates with **To continue** **turn off then on**		A temporary printing error occurred.	1. Press the SELECT (✓) button to continue. 2. Turn the printer off, and then turn the printer on again. 3. Reseat the connectors between the laser/scanner and ECU (J83 and J84). 4. Replace the laser/scanner assembly (see Laser/scanner. 5. Replace the ECU (see ECU).
53.XY.ZZ CHECK RAM **DIMM SLOT <X>** alternates with **To continue** **turn off then on**		A problem exists in the printer memory. The DIMM that caused the error will not be used.	You will be prompted to press ✓ (SELECT button) to continue in the following cases: • 1 or 2 DIMMs where the only error is ZZ=04 • 2 DIMMs where one is good and the other has an error with ZZ=01, 02, 03, or 05 • 2 DIMMs where one has an error with ZZ=04 and the other has an error with ZZ=01, 02, 03, or 05 Values of X and Y are as follows: • X = DIMM type, 1 = RAM • Y = Device location, 0 = Internal memory (RAM), 1 or 2 = DIMM slot 1 or 2 If the message continues, you might need to replace the specified DIMM. Turn the printer off, and then replace the DIMM that caused the error.
54.XX ERROR alternates with **To continue** **turn off then on**		This message is typically related to a sensor issue.	Turn the printer off, and then turn the printer on again. If the message persists, check the sensors in the printer to verify that they are working correctly.
55.XX.YY DC **CONTROLLER ERROR** alternates with **To continue** **turn off then on**		A temporary printing error occurred.	1. Turn the printer off, and then turn the printer on again. 2. If the message persists, replace the ECU (see ECU). 3. If, after replacing the ECU, the message persists, replace the power supply (Power supply).

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
56.XX ERROR **For help press ?** alternates with **To continue** **turn off then on**		A temporary printing error occurred as a result of an incorrect input or output request.	1. Turn the printer off, and then turn the printer on again. 2. Turn the printer off, and then turn the printer on again. 3. Reinstall all input trays. 4. Reinstall the stacker or stapler/stacker. 5. Remove all non-HP paper-handling devices.
57.XX ERROR **For help press ?** alternates with **To continue** **turn off then on**		A temporary printing error occurred in one of the printer fans.	1. Turn the printer off, and then turn the printer on again. 2. If the message persists, check the printer fans and replace fans as necessary.
58.XX ERROR **For help press ?** alternates with **To continue** **turn off then on**		A memory error has been detected. **X Description** 2 air-temperature sensor 3 ECU 4 power supply	The line voltage and current source at the printer location might need to be inspected to ensure that they meet the electrical specifications for the printer. (See Electrical specifications.) To resolve problems: 1. Turn the printer off, and then turn the printer on again. 58.2 Air-temperature sensor 1. Turn the printer off, and then turn the printer on again. 2. Reconnect the connector between the air-temperature sensor (the bar mounted across the main cooling fan on the left side of the printer) and the power supply (location J63). 3. Replace the fan. 4. Replace the power supply (see Power supply. 58.3 ECU 1. Replace the ECU (see ECU). 58.4 Power supply 1. Replace the power supply (see Power supply.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
59.XY ERROR **For help press ?** alternates with **To continue** **turn off then on**		A printer-motor error has occurred. **X Description** 0 main-motor error 1 motor startup error 2 motor rotation error 4 EP-motor error **Y Description** Y = 0	59.00, 59.10, 59.20 Motor failure 1. Turn the printer off, and then turn the printer on again. 2. Reconnect the main-motor wire-harness on the ECU 3. Replace the gear assembly (see Gear assembly. 4. Replace the ECU (see ECU). 59.A or 59.4 EP Motor failure 1. Turn the printer off, and then turn the printer on again. 2. Reconnect the EP-motor wire-harness on the ECU. 3. Replace the gear assembly (see Gear assembly. 4. Replace the ECU (see ECU).
62 NO SYSTEM alternates with **To continue** **turn off then on**		This message indicates that no system was found. The printer firmware system is corrupt.	1. Turn the printer off, and then turn the printer on again. 2. Reseat the firmware DIMM, in slot J1. 3. Replace the firmware DIMM. 4. Replace the formatter (see Formatter).
64 ERROR alternates with **To continue** **turn off then on**		A temporary printing error occurred in the scan buffer.	1. Turn the printer off, and then turn the printer on again. 2. If the message persists, replace the formatter (see Formatter).

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
68.X PERMANENT **STORAGE FULL** alternates with **To continue press ✓**		The printer permanent storage is full. Some settings might have been reset to the factory defaults.	1. Press the SELECT (✓) button to continue. 2. For **68.0** errors, turn the printer off, and then turn the printer on again. 3. If a **68.0** error persists, initialize NVRAM. See the caution and note in To initialize NVRAM. 4. For **68.1** errors, use the HP Web Jetadmin software to delete files from the disk drive. 5. If this error message persists, replace the formatter (see Formatter). 6. If the 68.1 error persists, reinitialize the hard disk. See the caution and note in To initialize the hard disk. 7. If the 68.1 error persists, replace the disk.
68.X PERMANENT **STORAGE WRITE FAIL** alternates with **To continue press ✓**		The storage device is failing to write. Printing can continue, but there might be some unexpected behaviors because an error occurred in permanent storage.	1. Press the SELECT (✓) button to continue. 2. Turn the printer off, and then turn the printer on again. 3. If the 68.0 error persists, initialize the NVRAM. See the caution and note in To initialize NVRAM. 4. If this error message persists, replace the formatter (see Formatter 5. For a 68.1 error message, reinitialize the hard disk. See the caution and note in To initialize the hard disk. 6. If the 68.1 error persists, replace the disk.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
68.X STORAGE ERROR **SETTINGS CHANGED** alternates with **To continue press ✓**		An error occurred in the printer permanent storage and one or more printer settings has been reset to its factory default.	1. Press the SELECT (✓) button to continue. 2. Turn the printer off, and then turn the printer on again. 3. Check the printer settings to determine which settings have been changed. See "Settings and defaults" and "Control-panel menus". 4. Perform a NVRAM initialization. See NVRAM initialization 5. Replace the formatter (see Formatter).
79.XXXX ERROR alternates with **To continue** **turn off then on**		The printer detected a critical hardware error.	1. Press STOP to clear the print job from the printer memory. Turn the printer off, and then turn the printer on again. 2. Try printing a job from a different program. If the job prints, go back to the first program and try printing a different file. If the message appears only with a certain program or print job, contact the software vendor for assistance. If the message persists with different programs and print jobs, try these steps. 1. Turn the printer off. 2. Disconnect all cables to the printer that connect it to the network or computer. 3. Remove all the memory DIMMs or third-party DIMMs from the printer. Then reinstall at least one memory DIMM. 4. Remove all EIO devices and CompactFlash cards from the printer. 5. Turn the printer on.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
79.XXXX ERROR alternates with **To continue** **turn off then on**		The printer detected a critical hardware error.	If the error no longer exists, follow these steps. 1. Install each DIMM and EIO device one at a time, making sure to turn the printer off and then back on as you install each device. 2. Replace a DIMM or EIO device if you determine that it causes the error. 3. Reconnect all cables that connect the printer to the network or computer.
8X.YYYY **EIO ERROR**		The EIO accessory card has encountered a critical error.	1. Turn the printer off, and then turn the printer on again. 2. Turn the printer off, reseat the EIO accessory, and then turn the printer on. 3. Replace the EIO accessory.
8X.YYYY EMBEDDED **JETDIRECT ERROR**		The embedded HP Jetdirect print server has encountered a critical error.	1. Turn the printer off, and then turn the printer on again. 2. Turn the printer off and then reseat the HP embedded Jetdirect print server. 3. Replace the HP embedded Jetdirect print server.
Access denied **MENUS LOCKED**		The printer control panel function you are trying to use has been locked to prevent unauthorized access.	See your network administrator.
Canceling...		The printer is canceling a job. The message continues while the job is stopped, the paper path is cleared, and any remaining incoming data on the active data channel is received and discarded.	No action is necessary.
CARD SLOT X DEVICE **FAILURE** alternates with **<Current status message>**		The CompactFlash card in slot X had a critical failure and can no longer be used.	Remove the card and replace it with a new one.
CARD SLOT X FILE **OPERATION FAILED** alternates with **<Current status message>**		The requested operation could not be performed. You might have attempted an illogical operation, such as trying to download a file to a non-existent folder.	Try printing again to an existing folder.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
CARD SLOT X FILE SYSTEM IS FULL alternates with **<Current status message>**		The CompactFlash card in slot X is full.	Delete files from the CompactFlash card and then try again. Use the Device Storage Manager in HP Web Jetadmin to download or delete files and fonts. (See the HP Web Jetadmin software Help for more information.)
CARD SLOT X IS WRITE PROTECTED alternates with **<Current status message>**		The CompactFlash card in slot X is protected, and no new files can be written to it.	Use the Device Storage Manager in HP Web Jetadmin to disable the write protection.
CARD SLOT X NOT INITIALIZED alternates with **<Current status message>**		The file system has not been initialized.	Use HP Web Jetadmin to initialize the file system.
Checking paper path		The printer is checking for possible jams or print media that was not cleared from the printer.	No action is necessary.
Checking printer		The printer is checking for possible jams or print media that was not cleared from the printer.	No action is necessary.
CHOSEN PERSONALITY NOT AVAILABLE alternates with **To continue press ✓**		The printer received a request for a personality (printer language) that does not exist in the printer. The print job is canceled.	Print the job using a printer driver for a different printer language, or add the requested language to the printer (if available). To see a list of available personalities, print a configuration page. (See Configuration page)
Clearing paper path		The printer jammed or the printer was turned on and media was detected in a wrong location. The printer is automatically attempting to eject the pages.	Wait for the printer to finish trying to clear the pages. If it cannot, a jam message will appear on the control panel display.
DATA RECEIVED alternates with **<current status message>**		The printer is waiting for the command to print (such as waiting for a form feed, or when the print job is paused).	Press ✓ (SELECT button) to continue.
Event log empty		You are attempting to view an empty event log by selecting **SHOW EVENT LOG** from the control panel.	No action necessary.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
INSTALL CARTRIDGE **For help press ?**		The print cartridge is missing and must be reinstalled for printing to continue.	Replace or correctly reinstall the print cartridge.
INSUFFICIENT MEMORY **TO LOAD FONTS/DATA .** alternates with **<DEVICE>** **To continue press ✓**		The printer received more data than can fit in its available memory. You might have tried to transfer too many macros, soft fonts, or complex graphics.	Press ✓ (SELECT button) to print the transferred data (some data might be lost). To solve this problem, simplify the print job or install additional memory.
LOAD TRAY XX **[TYPE][SIZE]** **For help press ?**		The tray that is indicated is configured for a specific type and size of media needed by a print job, but the tray is empty. All other trays are also empty.	Load the requested media in the tray that is indicated.
LOAD TRAY XX **[TYPE][SIZE]** **To continue press ✓** alternates with **LOAD TRAY XX** **[TYPE][SIZE]** **For help press ?**		A job is sent that requires a specific type and size that is not available in the tray that is indicated.	Load the requested media into the indicated tray and press ✓ (SELECT button).
LOAD TRAY XX **[TYPE][SIZE]** **To continue press ✓** alternates with **Move tray switch to** **CUSTOM**		A job is sent that requires a specific type and size that is not available in the tray that is indicated.	Move the tray switch to the CUSTOM position if another tray is available.
LOAD TRAY XX **[TYPE][SIZE]** **To continue press ✓** alternates with **Recommend move tray** **switch to STANDARD**		A job is sent that requires a specific type and size that is not available in the tray that is indicated.	If the size is detectable and another tray is available, move the switch to the STANDARD position.
LOAD TRAY XX **[TYPE][SIZE]** **To continue press ✓** alternates with **To use another** **tray press ✓**		A job is sent that requires a specific type and size that is not available in the tray that is indicated.	Press ✓ (SELECT button) to use a type and size that are available in another tray.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
MANUALLY FEED **[TYPE][SIZE]** **To continue press ✓** alternates with **MANUALLY FEED** **[TYPE][SIZE]** **For help press ?**		The printer is waiting for media to be loaded in tray 1 for manual feed.	Load the requested media into tray 1 and press ✓ (SELECT button).
MANUALLY FEED **[TYPE][SIZE]** **To use another** **tray press ✓**		The printer is waiting for media to be loaded in tray 1 for manual feed.	Press ✓ (SELECT button) to use a type and size that are available in another tray.
MANUALLY FEED **OUTPUT STACK** alternates with **Then press ✓ to** **print second sides**		The first side of a manual duplex job has been printed and the device is waiting for you to insert the output stack to complete the second side.	1. Load the output stack into tray 1, maintaining the same orientation with printed side down. 2. To continue printing, press ✓ (SELECT button) to exit the printer message and then press ✓ (SELECT button) to print.
No job to cancel		The STOP button was pressed, but there is no active job or buffered data to cancel. The message appears for approximately 2 seconds before the printer returns to the ready state.	No action is necessary.
NON HP SUPPLY **INSTALLED** alternates with **<Current status message>** **Economode disabled**		The printer has detected that the print cartridge is not a genuine HP supply.	This message appears until you install an HP cartridge or press ✓ (SELECT button). If you believe that you purchased a genuine HP supply, go to http://www.hp.com/go/anticounterfeit. Any printer repair required as a result of using non-HP supplies or unauthorized supplies is not covered under the printer warranty.
ORDER CARTRIDGE alternates with **<current status** **message>**		The message first appears when about 16% (6,000-page cartridge) or about 8% (12,000-page cartridge) of the life remains in the print cartridge.	Make sure that you have a new cartridge ready.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
Paused alternates with **To return to ready** press STOP		The printer is paused but continues to receive data until the memory is full. The printer is not experiencing an error.	1. Press STOP. 2. Turn the printer off and then back on. 3. If necessary, perform a cold reset. 4. Add printer memory.
RAM DISK DEVICE FAILURE alternates with **<Current status message>**		The RAM disk had a critical failure and can no longer be used.	1. Turn the printer off, and then on again. 2. If this error persists, a defective DRAM DIMM might be installed in the printer (on the formatter). Replace the DRAM DIMM(s). The procedure for replacing a DRAM DIMM is the same as replacing a firmware DIMM.
RAM DISK FILE OPERATION FAILED alternates with **<Current status message>**		The requested operation could not be performed. You might have attempted an illogical operation, such as trying to download a file to a non existent folder.	Try printing again to an existing folder.
RAM DISK FILE SYSTEM IS FULL alternates with **<Current status message>**		The RAM disk is full.	1. Delete files and then try again, or turn the printer off, and then turn the printer on to delete all files on the device. (Use Device Storage Manager in HP Web Jetadmin or another software utility to delete the files.) 2. If the message persists, increase the size of the RAM disk. Change the RAM disk size on the **System Setup** submenu (on the **Configure Device** menu) at the printer control panel. See the description of the RAM disk menu items in **System Setup** submenu.
RAM DISK IS WRITE PROTECTED alternates with **<Current status message>**		The RAM disk is protected, and no new files can be written to it.	Use the Device Storage Manager in HP Web Jetadmin to disable the write protection.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
RAM DISK NOT INITIALIZED alternates with **<Current status message>**		The file system has not been initialized.	Use HP Web Jetadmin to initialize the file system.
REPLACE CARTRIDGE **For help press ?** alternates with **<current status message>**		Pages remaining for this supply has reached the low threshold. The printer was set to stop printing when a supply needs to be ordered.	To continue printing, press ✓ (SELECT button) to exit the printer message then press ✓ (SELECT button). The message becomes **ORDER CARTRIDGE LESS THAN XXXX PAGES** (warning). Follow the next steps to replace the supply. 1. Open the top cover. 2. Remove print cartridge. 3. Install new print cartridge. 4. Close the top cover.
REPLACE CARTRIDGE **To continue press ✓**		The number of pages remaining for this supply has reached the low threshold. The printer was set to continue printing when a supply needs to be ordered.	Press ✓ (SELECT button) to continue printing the current job. Follow the next steps to replace the supply. 1. Open the top cover. 2. Remove print cartridge. 3. Install new print cartridge. 4. Close the top cover.
TRAY XX **[TYPE][SIZE]** alternates with **To change size or type press ✓**		This message states the current type and size configuration of the paper tray, and allows you to change the configuration.	To change the paper size or type press ✓ (SELECT button) while the message is present. To clear the message, press the ⮌ (BACK button) while the message is present. • Set size and type to **ANY** if the tray is used frequently for different sizes or types. • Set size and type to a specific setting if printing with only one type of media.
TRAY XX OPEN OR EMPTY alternates with **<current status message>**		The tray cannot feed paper to the printer because tray [X] is open and must be closed for printing to continue.	Check the trays and close any that are open.

Table 7-8. Interpreting control-panel messages (continued)

Control panel message	Event log error message	Description	Recommended action
UNSUPPORTED DATA ON **[FS] DIMM IN SLOT X** alternates with **To clear press ✓**		The data on the DIMM is not supported.	The DIMM might need to be replaced. Turn the printer off before removing it. Press ✓ (SELECT button) to continue.
USE TRAY XX **[TYPE][SIZE]** alternates with **To change press ▲ /▼** **To use press ✓**		The printer did not detect the type and size of media requested. The message shows the most likely type and size available and the tray in which they are available.	Press ✓ (SELECT button) to accept the values in the message, or use ▲ (UP button) and ▼ (DOWN button) to scroll through the available choices.

Correcting print-quality problems

This section helps you define print-quality problems and what to do to correct them. Often print- quality problems can be handled easily by making sure that the printer is correctly maintained, using print media that meets HP specifications, or running a cleaning page.

Print-quality checklist

General print-quality problems can be solved by following the checklist below.

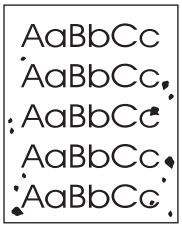
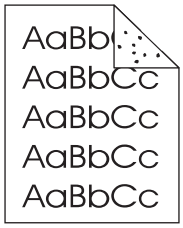
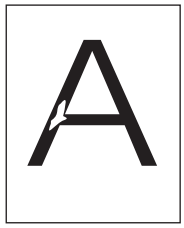
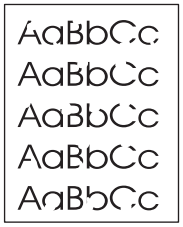
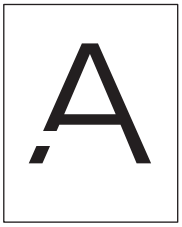
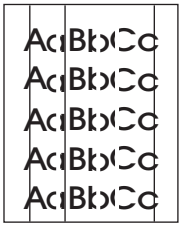
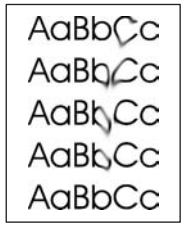
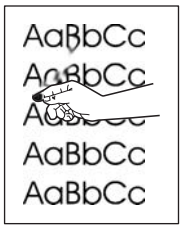
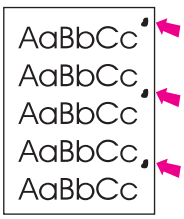
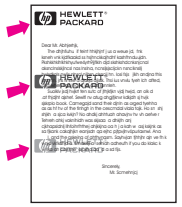
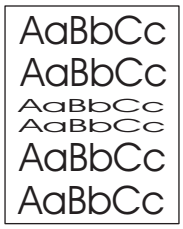
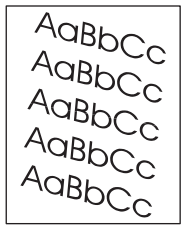
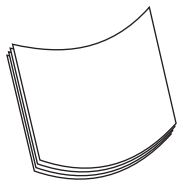
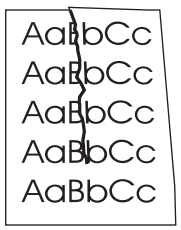
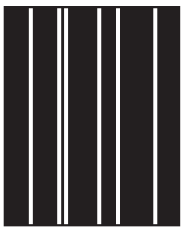
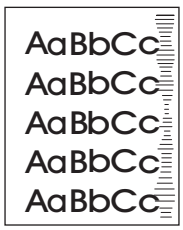
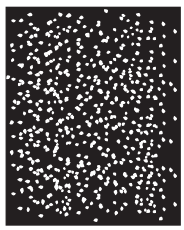
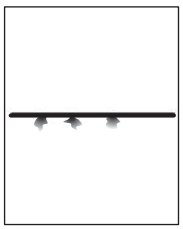
- Check the printer driver to make sure that you are using the best available print-quality option (see the user guide).
- Try printing with one of the alternative printer drivers. The most recent printer drivers area available for download from www.hp.com/go/lj2410_software, www.hp.com/go/lj2420_software, or www.hp.com/go/lj2430_software.
- Clean the inside of the printer (see Cleaning the printer).
- Check the paper type and quality (see Media specifications).
- Check to make sure that EconoMode is off in the software.
- Troubleshoot general printing problems (see Solving general printing problems).
- Install a new HP print cartridge, and then check the print quality again. (See the instructions provided with the print cartridge.)

NOTE If the page is totally blank (all white) check to make sure that the sealing tape is removed from the print cartridge and ensure that the print cartridge is installed correctly. Newer printers have been optimized to print characters more accurately. This might result in characters that look lighter or thinner than you are used to from your older printer. If the page is printing images darker than those from an older printer, and you want the images to match the older printer, make these changes in your printer driver: on the **Finishing** tab, select **Print Quality**, select **Custom**, click **Details**, and select the check box for **Print Images Lighter**.

Image-defect examples

Use the examples in this image-defect table to determine which print-quality problem you are experiencing, and then see the corresponding reference pages to troubleshoot the problem. These examples identify the most common print-quality problems.

NOTE The examples below depict letter-size paper that has passed through the printer short-edge first.

See Light print (partial page)	See Light print (entire page)	 See Specks	 See Specks	 See Dropouts
 See Dropouts	 See Dropouts	 See Lines	See Gray background	 See Toner smear
 See Loose toner	 See Repeating defects	 See Repeating image	 See Misformed characters	 See Page skew
 See Curl or wave	 See Wrinkles or creases	 See Vertical white lines	 See Tire tracks	 See White spots on black
 See Scattered lines.	See Blurred print.	See Random image repetition (dark)	See Random image repetition (light)	

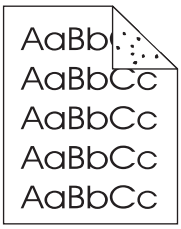
Light print (partial page)

1. Make sure that the print cartridge is fully installed.
2. The toner level in the print cartridge might be low. Replace the print cartridge.
3. The media might not meet HP specifications (for example, the paper is too moist or too rough). See Media specifications.
4. The transfer roller might be worn or contaminated. Replace the transfer roller (see Transfer roller.

Light print (entire page)

1. Make sure that the print cartridge is fully installed.
2. Make sure that the EconoMode setting is turned off at the control panel and in the printer driver.
3. Open the Configure Device menu at the printer control panel. Open the Print Quality submenu and increase the TONER DENSITY setting. See the user guide.
4. Try using a different type of media.
5. The print cartridge might be almost empty. Replace the print cartridge.
6. The print cartridge might be installed incorrectly. Reseat the print cartridge.
7. The transfer roller might be defective or installed incorrectly. Verify that the transfer roller is installed correctly. If the transfer roller is damaged, replace it.
8. The power supply might be defective. Replace the power supply (see Power supply.

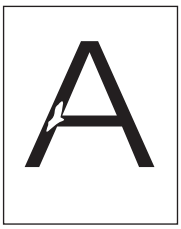
Specks



Specks might appear on a page after a jam has been cleared.

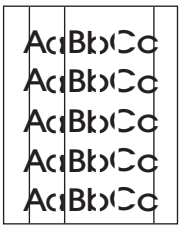
1. Print a few more pages to see if the problem corrects itself.
2. Clean the inside of the printer and run a cleaning page to clean the fuser. (See Cleaning the printer.)
3. Try using a different type of media.
4. Check the print cartridge for leaks. If the print cartridge is leaking, replace it.
5. The fuser might be defective. Replace the fuser Fuser.

Dropouts



1. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
2. If the paper is rough, and the toner easily rubs off, open the Configure Device menu at the printer control panel. Open the Print Quality submenu, select **FUSER MODES**, and then select the paper type that you are using. Change the setting to HIGH 1 or HIGH 2, which helps the toner fuse more completely onto the paper. (See the user guide.)
3. Try using a smoother paper.
4. The print cartridge might be defective. Replace the print cartridge.
5. Fuser rollers might be dirty. Run a cleaning page (several pages might be required if the fuser is very dirty). If the image defect persists, replace the fuser (see Fuser.
6. The transfer roller might be damaged, dirty, or worn. Try cleaning the transfer roller by using a dry, lint-free cloth. If the image defect persists, replace the transfer roller.
7. The power supply might be defective. Replace the power supply (see Power supply.

Lines

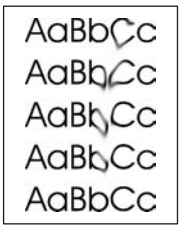


1. Print a few more pages to see if the problem corrects itself.
2. Clean the inside of the printer and run a cleaning page to clean the fuser. (See Cleaning the printer.)
3. Replace the print cartridge.

Gray background

1. Do not use media that has already been run through the printer.
2. Try using a different type of media.
3. Print a few more pages to see if the problem corrects itself.
4. Turn over the stack of media in the tray. Also, try rotating the stack 180°.
5. Open the Configure Device menu at the printer control panel. On the Print Quality submenu, increase the **TONER DENSITY** setting. See the user guide.
6. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
7. Replace the print cartridge.
8. The power supply might be defective. Replace the power supply (see Power supply.

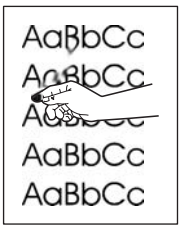
Toner smear



1. Print a few more pages to see if the problem corrects itself.
2. Try using a different type of media.
3. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
4. Clean the inside of the printer and run a cleaning page to clean the fuser. (See Cleaning the printer.)
5. Replace the print cartridge.
6. The fuser might be defective. Replace the fuser (see Fuser.
7. The ECU might be defective. Replace the ECU (see ECU.

Also see Loose toner.

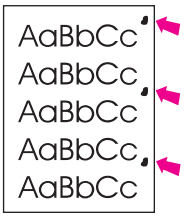
Loose toner



Loose toner, in this context, is defined as toner that can be rubbed off the page.

1. If paper is heavy or rough, open the Configure Device menu at the printer control panel. On the Print Quality submenu, select **FUSER MODES**, and then select the paper type that you are using. Change the setting to HIGH 1 or HIGH 2, which helps the toner fuse more completely onto the paper. (See the user guide.) You must also set the type of media for the tray that you are using. (See Printing by type and size of media (locking trays).)
2. If you have observed a rougher texture on one side of your paper, try printing on the smoother side.
3. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
4. Make sure that type and quality of the media that you are using meet HP specifications. (See Media specifications.)
5. The fuser might be defective. Replace the fuser (see Fuser).
6. The ECU might be defective. Replace the ECU (see Laser/scanner.

Repeating defects



1. Print a few more pages to see if the problem corrects itself.
2. Clean the inside of the printer and run a cleaning page to clean the fuser. (See Cleaning the printer.)
3. Measure the distance between two identical defects and see Repeating defects.

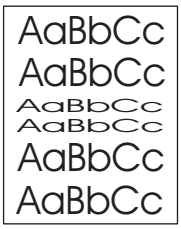
Also see Repeating image.

Repeating image

This type of defect might occur when using preprinted forms or a large quantity of narrow paper.

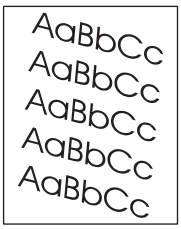
1. Print a few more pages to see if the problem corrects itself.
2. Run a cleaning page, and then print a few more pages to see if the problem persists.
3. Make sure that type and quality of the media that you are using meet HP specifications. (See Media specifications.)
4. If the distance between defects is 38 mm (1.5 inches), 47 mm (1.85 inches), or 94 mm (3.7 inches), the print cartridge might need to be replaced.
5. Measure the distance between two identical defects and see Repeating defects.

Misformed characters



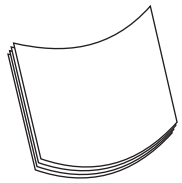
1. Print a few more pages to see if the problem corrects itself.
2. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
3. Reseat cables that are connected to the laser/scanner.
4. Reseat cables that are connected to the ECU.
5. If the image defect persists, the laser/scanner might be defective. Replace the laser/scanner Laser/scanner.
6. Inspect the gears in the main drive assembly and replace the assembly if gears are damaged (see Gear assembly).
7. The ECU might be defective. Replace the ECU (see ECU).

Page skew



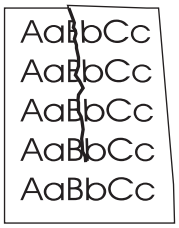
1. Print a few more pages to see if the problem corrects itself.
2. Verify that there are no torn pieces of media inside the printer.
3. Make sure that media is loaded correctly and that all adjustments have been made. (See the user guide.) Make sure that the guides in the tray are not too tight or too loose against the stack.
4. Turn over the stack of paper in the tray. Also, try rotating the stack 180°.
5. Make sure that the type and quality of the media that you are using meet HP specifications. (See Media specifications.)
6. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
7. The registration assembly might be installed incorrectly or damaged. Make sure that the registration assembly is installed correctly. If necessary, replace the registration assembly (see Registration assembly.

Curl or wave



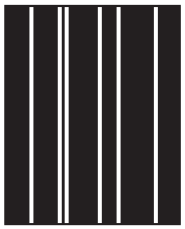
1. Turn over the stack of media in the tray. Also, try rotating the stack 180°.
2. Make sure that the type and quality of the media that you are using meet HP specifications. (See Media specifications.)
3. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
4. Try printing to a different output bin.
5. If paper is lightweight and smooth, open the Configure Device menu at the printer control panel. On the Print Quality submenu, select **FUSER MODES**, and then select the paper type that you are using. Change the setting to **LOW**, which helps reduce the heat in the fusing process. (See the user guide.) You must also set the type of media for the tray that you are using. (See Printing by type and size of media (locking trays).)

Wrinkles or creases



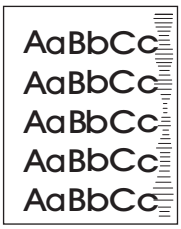
1. Print a few more pages to see if the problem corrects itself.
2. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
3. Turn over the stack of media in the tray. Also, try rotating the stack 180°.
4. Make sure that media is loaded correctly and all adjustments have been made. (See the user guide.)
5. Make sure that the type and quality of the media that you are using meet HP specifications. (See Media specifications.)
6. If envelopes are creasing, try storing envelopes so that they lie flat.

Vertical white lines



1. Print a few more pages to see if the problem corrects itself.
2. Make sure that the type and quality of the media that you are using meet HP specifications. (See Media specifications.)
3. Replace the print cartridge.
4. Remove the laser/scanner and check for dirt or other obstructions in the beam path.
5. The fuser might be defective. Replace the fuser (see Fuser).
6. If the image defect persists, the mirror in the laser/scanner might be dirty. Replace the laser/scanner (see Laser/scanner).
7. If the image defect persists, replace the ECU (see ECU).
8. If the image defect persists, replace the formatter (see Formatter).

Tire tracks

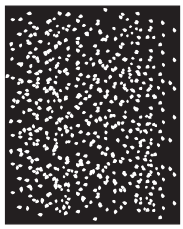


This defect typically occurs when the print cartridge has far exceeded its rated life of 6,000 (Q6511A) or 12,000 (Q6511X) pages. For example, if you are printing a very large quantity of pages with very little toner coverage.

1. Perform a half self-test functional check. If the drum is damaged, replace the print cartridge.
2. Run a cleaning page. If the image defect persists, replace the fuser (see Fuser).
3. If the image defect persists, check the printer for other sources of contamination or damage in the paper path and clean or replace parts as necessary.

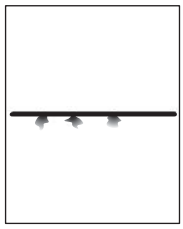
NOTE This type of image defect might also be a repetitive defect. See Repeating defects.

White spots on black



1. Print a few more pages to see if the problem corrects itself.
2. Make sure that the type and quality of the media that you are using meet HP specifications. (See Media specifications.)
3. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
4. Replace the print cartridge.

Scattered lines

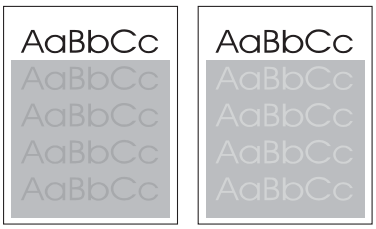


1. Make sure that the type and quality of the media that you are using meet HP specifications. (See Media specifications.)
2. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
3. Turn over the stack of media in the tray. Also, try rotating the stack 180°.
4. Open the Configure Device menu at the printer control panel. Open the Print Quality submenu and change the **TONER DENSITY** setting. (See the user guide.)
5. Open the Configure Device menu at the printer control panel. On the Print Quality submenu, open **OPTIMIZE** and set **LINE DETAIL=ON**.

Blurred print

1. Make sure that the type and quality of the media that you are using meet HP specifications. (See Media specifications.)
2. Make sure that the environmental specifications for the printer are being met. (See Operating environment.)
3. Turn over the stack of media in the tray. Also, try rotating the stack 180°.
4. Do not use paper that already has been run through the printer.
5. Decrease the toner density. Open the Configure Device menu at the printer control panel. Open the Print Quality submenu and change the **TONER DENSITY** setting. (See the user guide.)
6. Open the Configure Device menu at the printer control panel. On the Print Quality submenu, open **OPTIMIZE** and set **HIGH TRANSFER=ON**. (See the user guide.)

Random image repetition



If an image that appears at the top of the page (in solid black) repeats farther down the page (in a gray field), the toner might not have been completely erased from the last job. (The repeated image might be lighter or darker than the field it appears in.)

- Change the tone (darkness) of the field that the repeated image appears in.
- Change the order in which the images are printed. For example, have the lighter image at the top of the page, and the darker image farther down the page.
- From the software application, rotate the whole page 180° to print the lighter image first.
- If the defect occurs later in a print job, turn the printer off for 10 minutes, and then turn the printer on to restart the print job.

Troubleshooting common Windows problems

Error message:

"Error Writing to LPTx" in Windows 9x.

Cause	Solution
Media is not loaded.	Make sure that paper or other print media is loaded in the trays.
The cable is defective or loose.	Make sure that the cables are connected correctly, the printer is on, and the Ready light is on.
The printer is plugged into a power strip and is not receiving enough power.	Unplug the power cord from the power strip and plug it into another electrical outlet.
The input/output setting is incorrect.	Click **Start**, click **Settings**, and then click **Printers**. Right-click the HP LaserJet 2400 series printer driver and select **Properties**. Click **Details** and then click **Port Settings**. Click to clear the check mark from the **Check Port State before Printing** box. Click **OK**. Click **Spool Setting** and then click **Print Directly to Printer**. Click **OK**.

Error message:

"General Protection Fault Exception OE"

"Spool32"

"Illegal Operation"

Cause	Solution
	Close all software programs, restart Windows, and try again. Select a different printer driver. If the HP LaserJet 2400 series PCL 6 driver is selected, switch to a PCL 5e or PS printer driver. You can usually do this from a software program. Delete all temp files from the Temp subdirectory. You can determine the name of the directory by editing the AUTOEXEC.BAT file and looking for the statement "Set Temp =". The name after this statement is the temp directory. It is usually C:\TEMP by default, but can be redefined. See the Microsoft Windows documentation that came with your computer for more information about Windows error messages.

Troubleshooting common Macintosh problems

In addition to the problems that are listed in Solving general printing problems, this section lists problems that can occur when using Mac OS 9.**x**, or Mac OS X.

NOTE Setup for USB and IP printing is performed through the **Desktop Printer Utility**. The printer will **not** appear in the Chooser.

Table 7-9. Problems with Mac OS 9.x

The printer name or IP address does not show or verify in the Desktop Printer Utility.

Cause	Solution
The printer might not be ready.	Make sure that the cables are connected correctly, the printer is on, and the ready light is on. If you are connecting through a USB or Ethernet hub, try connecting directly to the computer or use a different port.
The wrong connection type might be selected.	Make sure that **Printer (USB)** or **Printer (LPR)** is selected in the **Desktop Printer Utility**, depending on the type of connection that exists between the printer and the computer.
The wrong printer name or IP address is being used.	Check the printer name or IP address by printing a configuration page. See Configuration page. Verify that the printer name or IP address on the configuration page matches the printer name or IP address in the **Desktop Printer Utility**.
The interface cable might be defective or of poor quality.	Replace the interface cable. Make sure to use a high-quality cable.

The PostScript Printer Description (PPD) file for the printer does not appear as a selection in the Desktop Printer Utility.

Cause	Solution
The printer software might not have been installed or was installed incorrectly.	Make sure that the HP LaserJet 2400 series PPD is in the following hard-drive folder: `System Folder/Extensions/Printer Descriptions`. If necessary, reinstall the software. See the getting started guide for instructions.
The PostScript Printer Description (PPD) file is corrupt.	Delete the PPD file from the following hard-drive folder: `System Folder/Extensions/Printer Descriptions`. Reinstall the software. See the getting started guide for instructions.

A print job was not sent to the printer that you wanted.

Cause	Solution
The print queue might be stopped.	Restart the print queue. Open the **Printing** menu in the top menu bar and click **Start Print Queue**.

Table 7-9. Problems with Mac OS 9.x (continued)

A print job was not sent to the printer that you wanted.

Cause	Solution
The wrong printer name or IP address is being used. Another printer that has the same or a similar name or IP address might have received your print job.	Check the printer name or IP address by printing a configuration page. See Configuration page. Verify that the printer name or IP address on the configuration page matches the printer name or IP address in the **Desktop Printer Utility**.
The printer might not be ready.	Make sure that the cables are connected correctly, the printer is on, and the ready light is on. If you are connecting through a USB or Ethernet hub, try connecting directly to the computer or use a different port.
The interface cable might be defective or of poor quality.	Replace the interface cable. Make sure to use a high-quality cable.

You cannot use the computer while the printer is printing.

Cause	Solution
Background Printing has not been selected.	For LaserWriter 8.6 and later: Turn Background Printing on by selecting **Print Desktop** on the **File** menu and then clicking **Background Printing**.

An encapsulated PostScript (EPS) file does not print with the correct fonts.

Cause	Solution
This problem occurs with some programs.	• Try downloading the fonts that are contained in the EPS file to the printer before printing. • Send the file in ASCII format instead of binary encoding.

Your document is not printing with New York, Geneva, or Monaco fonts.

Cause	Solution
The printer might be substituting fonts.	Click **Options** in the **Page Setup** dialog box to clear substituted fonts.

You are unable to print from a third-party USB card.

Cause	Solution
This error occurs when the software for USB printers is not installed.	When adding a third-party USB card, you might need the Apple USB Adapter Card Support software. The most current version of this software is available from the Apple Web site.

Table 7-9. Problems with Mac OS 9.x (continued)

When connected with a USB cable, the printer does not appear in the Desktop Printer Utility or the Apple System Profiler after the driver is selected.

Cause	Solution
This problem is caused by either a software or hardware component.	**Software troubleshooting** • Check that your Macintosh supports USB. • Verify that your Macintosh operating system is Mac OS 9.1 or later. • Ensure that your Macintosh has the appropriate USB software from Apple. **NOTE** The iMac and Blue G3 desktop Macintosh systems meet all of the requirements to connect to a USB device. **Hardware troubleshooting** • Check that the printer is turned on. • Verify that the USB cable is connected correctly. • Check that you are using the appropriate high-speed USB cable. • Ensure that you do not have too many USB devices drawing power from the chain. Disconnect all of the devices from the chain and connect the cable directly to the USB port on the host computer. • Check to see if more than two non-powered USB hubs are connected in a row on the chain. Disconnect all of the devices from the chain and connect the cable directly to the USB port on the host computer. **NOTE** The iMac keyboard is a non-powered USB hub.

Table 7-10. Problems with Mac OS X

The printer driver is not listed in Print Center.

Cause	Solution
The printer software might not have been installed or was installed incorrectly.	Make sure that the HP LaserJet 2400 series PPD is in the following hard-drive folder: `Library/Printers/PPDs/Contents/Resources/<lang>.lproj`, where `<lang>` represents the two-letter language code for the language that you are using. If necessary, reinstall the software. See the getting started guide for instructions.
The Postscript Printer Description (PPD) file is corrupt.	Delete the PPD file from the following hard-drive folder: `Library/Printers/PPDs/Contents/Resources/<lang>.lproj`, where `<lang>` represents the two-letter language code for the language that you are using. Reinstall the software. See the getting started guide for instructions.

Table 7-10. Problems with Mac OS X (continued)

The printer name, IP address, or Rendezvous host name does not appear in the printer list box in the print center.

Cause	Solution
The printer might not be ready.	Make sure that the cables are connected correctly, the printer is on, and the ready light is on. If you are connecting through a USB or Ethernet hub, try connecting directly to the computer or use a different port.
The wrong connection type might be selected.	Make sure that USB, IP Printing, or Rendezvous is selected, depending on the type of connection that exists between the printer and the computer.
The wrong printer name, IP address, or Rendezvous host name is being used.	Check the printer name, IP address, or Rendezvous host name by printing a configuration page See Configuration page. Verify that the name, IP address, or Rendezvous host name on the configuration page matches the printer name, IP address, or Rendezvous host name in the Print Center.
The interface cable might be defective or of poor quality.	Replace the interface cable. Make sure to use a high-quality cable.

The printer driver does not automatically set up your selected printer in Print Center.

Cause	Solution
The printer might not be ready.	Make sure that the cables are connected correctly, the printer is on, and the ready light is on. If you are connecting through a USB or Ethernet hub, try connecting directly to the computer or use a different port.
The printer software might not have been installed or was installed incorrectly.	Make sure that the HP LaserJet 2400 series PPD is in the following hard-drive folder: `Library/Printers/PPDs/Contents/Resources/<lang>.lproj`, where `<lang>` represents the two-letter language code for the language that you are using. If necessary, reinstall the software. See the getting started guide for instructions.
The Postscript Printer Description (PPD) file is corrupt.	Delete the PPD file from the following hard-drive folder: `Library/Printers/PPDs/Contents/Resources/<lang>.lproj`, where `<lang>` represents the two-letter language code for the language that you are using. Reinstall the software. See the getting started guide for instructions.
The printer might not be ready.	Make sure that the cables are connected correctly, the printer is on, and the ready light is on. If you are connecting through a USB or Ethernet hub, try connecting directly to the computer or use a different port.
The interface cable might be defective or of poor quality.	Replace the interface cable. Make sure to use a high-quality cable.

A print job was not sent to the printer that you wanted.

Cause	Solution
The print queue might be stopped.	Restart the print queue. Open **print monitor** and select **Start Jobs**.

Table 7-10. Problems with Mac OS X (continued)

A print job was not sent to the printer that you wanted.

Cause	Solution
The wrong printer name or IP address is being used. Another printer with the same or similar name, IP address, or Rendezvous host name might have received your print job.	Check the printer name, IP address, or Rendezvous host name by printing a configuration page See Configuration page. Verify that the name, IP address, or Rendezvous host name on the configuration page matches the printer name, IP address, or Rendezvous host name in the Print Center.

An encapsulated PostScript (EPS) file does not print with the correct fonts.

Cause	Solution
This problem occurs with some programs.	• Try downloading the fonts that are contained in the EPS file to the printer before printing. • Send the file in ASCII format instead of binary encoding.

You are unable to print from a third-party USB card.

Cause	Solution
This error occurs when the software for USB printers is not installed.	When adding a third-party USB card, you might need the Apple USB Adapter Card Support software. The most current version of this software is available from the Apple Web site.

Table 7-10. Problems with Mac OS X (continued)

When connected with a USB cable, the printer does not appear in the Macintosh Print Center after the driver is selected.

Cause	Solution
This problem is caused by either a software or a hardware component.	**Software troubleshooting** • Check that your Macintosh supports USB. • Verify that your Macintosh operating system is Mac OS X version 10.1 or later. • Ensure that your Macintosh has the appropriate USB software from Apple. **Hardware troubleshooting** • Check that the printer is turned on. • Verify that the USB cable is connected correctly. • Check that you are using the appropriate high-speed USB cable. • Ensure that you do not have too many USB devices drawing power from the chain. Disconnect all of the devices from the chain, and connect the cable directly to the USB port on the host computer. • Check to see if more than two non-powered USB hubs are connected in a row on the chain. Disconnect all of the devices from the chain and connect the cable directly to the USB port on the host computer. **NOTE** The iMac keyboard is a non-powered USB hub.

Troubleshooting common PostScript problems

The following situations are specific to the PostScript (PS) language and might occur when several printer languages are being used. Check the control-panel display for messages that might help resolve problems.

NOTE To receive a printed or screen message when PS errors occur, open the **Print Options** dialog box and click the selection next to the PS Errors section that you want.

General problems

The job prints in Courier (the printer's default typeface) instead of the typeface that you requested.

Cause	Solution
The requested typeface is not downloaded.	Download the font that you want and send the print job again. Verify the type and location of the font. Download the font to the printer if applicable. Check the software documentation for more information.

A legal page prints with clipped margins.

Cause	Solution
The print job was too complex.	You might need to print your job at 600 dots per inch (dpi), reduce the complexity of the page, or install more memory.

A PS error page prints.

Cause	Solution
The print job might not be PS.	Make sure that the print job is a PS job. Check to see whether the software application expected a setup or PS header file to be sent to the printer.

Specific errors

Limit Check Error

Cause	Solution
The print job was too complex.	You might need to print your job at 600 dots per inch (dpi), reduce the complexity of the page, or install more memory.

VM Error

Cause	Solution
A font error occurred.	Select unlimited downloadable fonts from the printer driver.

Range Check

Cause	Solution
A font error occurred.	Select unlimited downloadable fonts from the printer driver.

Printer component locations

Diagrams are provided below detailing the locations of various printer components.

Main assemblies

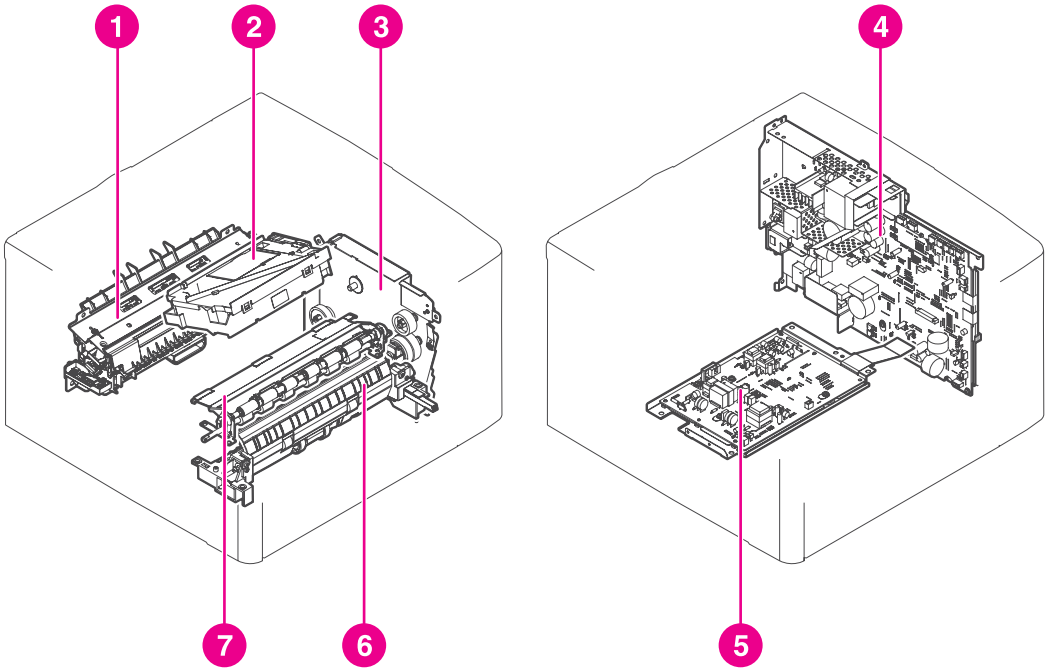


Figure 7-6. **Main assemblies, HP LaserJet 2400 series**

1 Fuser
2 Laser/scanner assembly
3 Drive assembly
4 Engine controller assembly
5 High-voltage power supply circuit assembly
6 Pick-up assembly
7 Registration assembly

Main parts

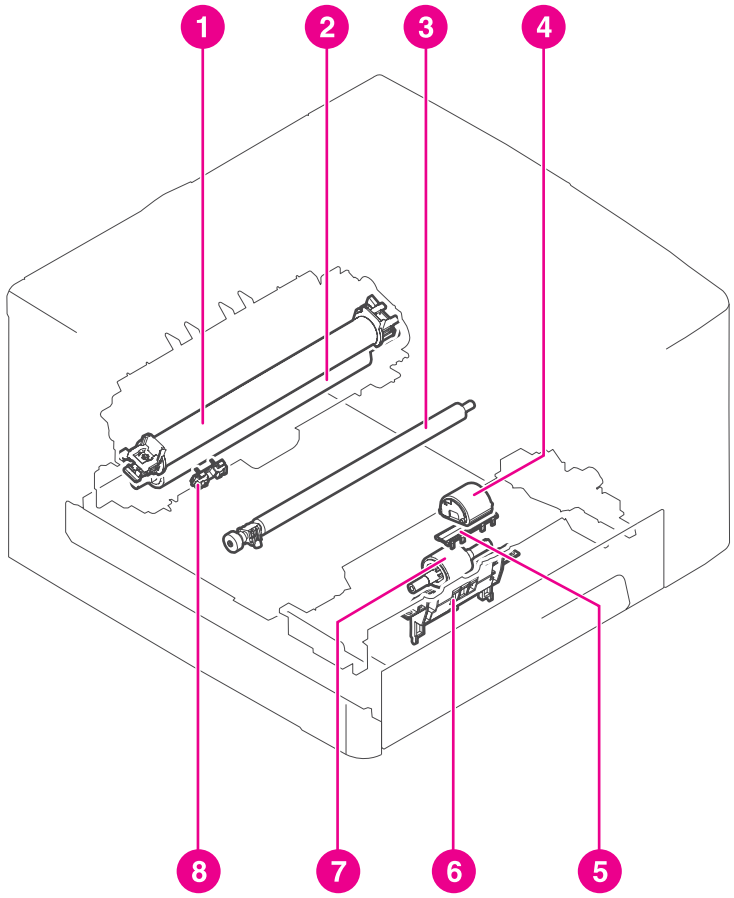


Figure 7-7. **Main parts, HP LaserJet 2400 series**

1 Fixing film
2 Pressure roller
3 Transfer charging roller
4 Tray 1 pick-up roller
5 Tray 1 separation pad
6 Tray 2 pick-up roller
7 Tray 2 Memory tag contact
8 Memory tag contact

Sensors and switches

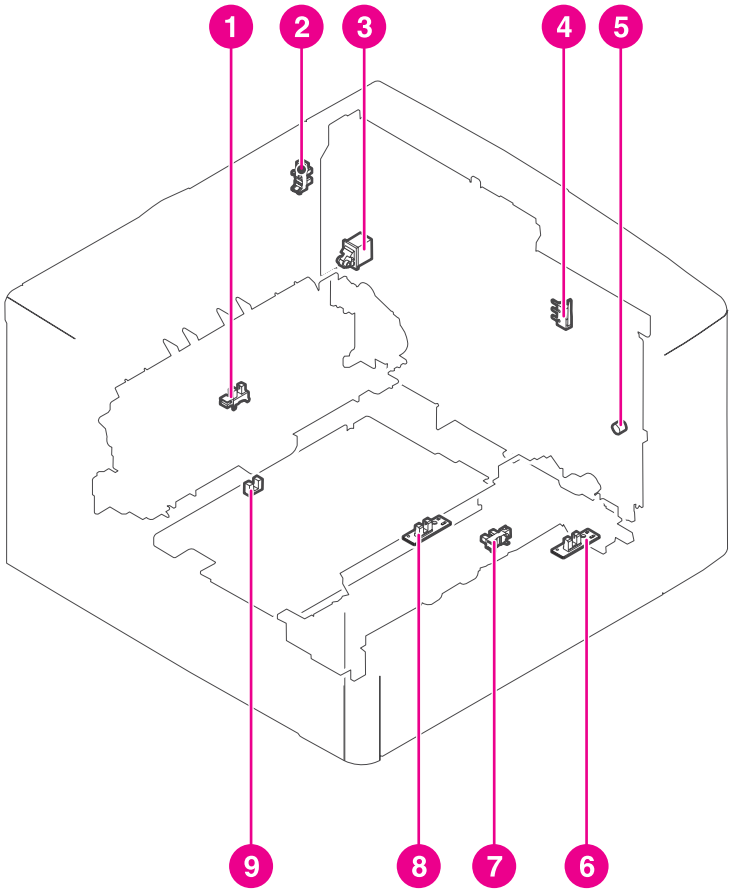


Figure 7-8. **Sensors and switches, HP LaserJet 2400 series**

1 Delivery sensor
2 Face-up cover sensor
3 Power switch
4 Door switch
5 Test print switch
6 Tray 1 paper detection sensor
7 Tray 2 Top of page sensor
8 Top of page sensor
9 Duplex sensor

Motors, fans, and solenoids

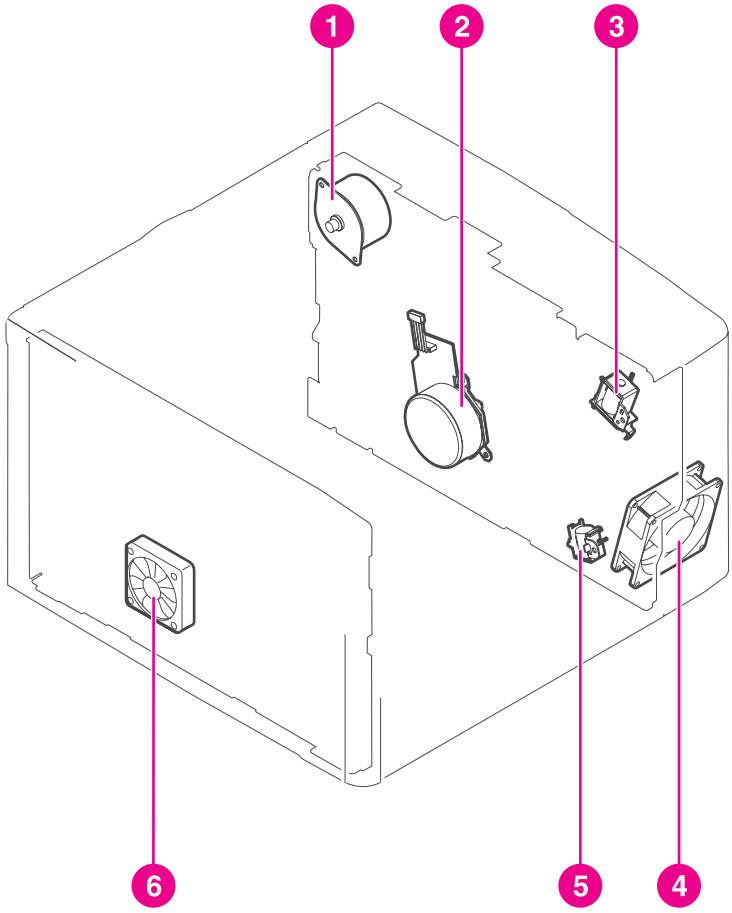


Figure 7-9. **Motors, fans, and solenoids, HP LaserJet 2400 series**

1 Fuser motor
2 Main motor
3 Tray 1 pickup solenoid
4 Main fan
5 Tray 2 pickup solenoid
6 Sub fan

PCAs

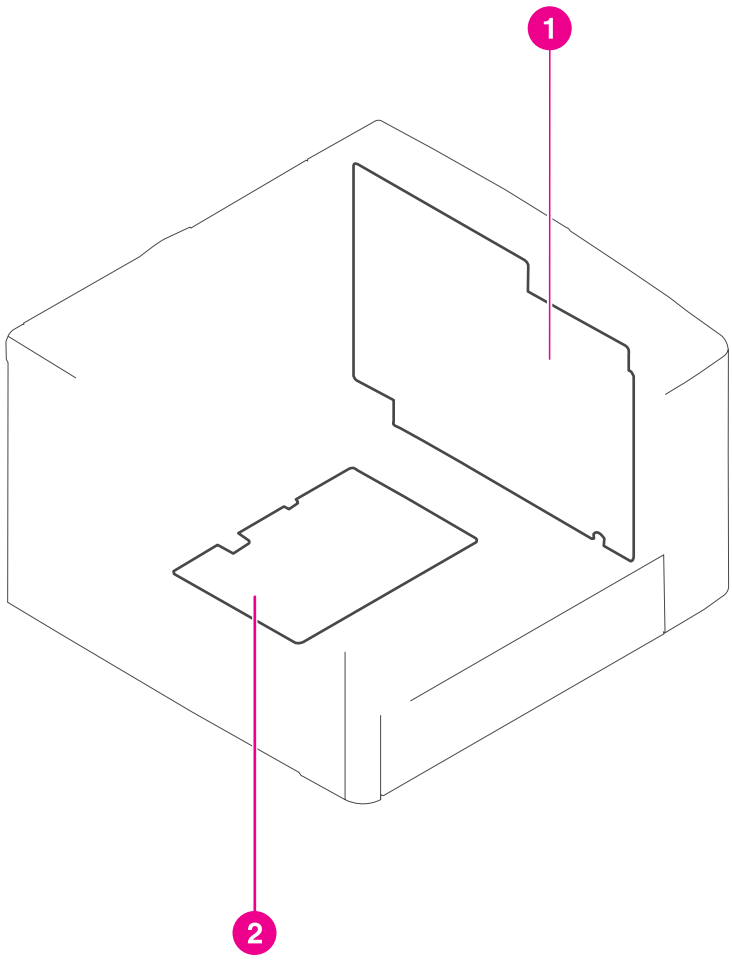


Figure 7-10. **PCAs, HP LaserJet 2400 series**

1 Engine controller PCB
2 High-voltage power supply PCB

500-Sheet paper feeder

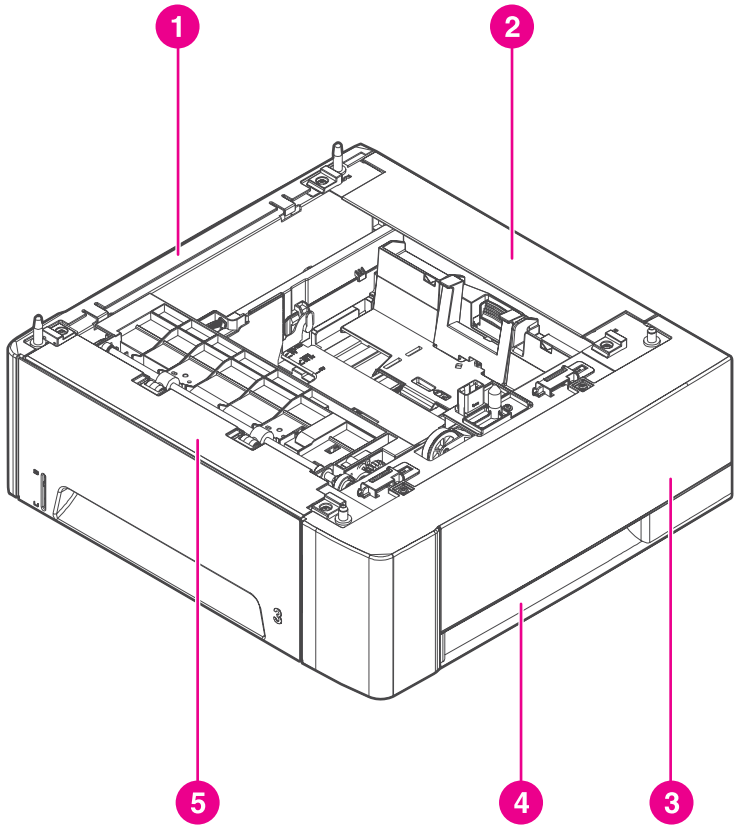


Figure 7-11. **500-Sheet paper feeder, HP LaserJet 2400 series**

1 Left cover
2 Rear cover
3 Upper right cover
4 Lower right cover
5 Front cover

Wiring diagrams

The following figures show HP LaserJet 2400 Series printer wiring and circuitry layout.

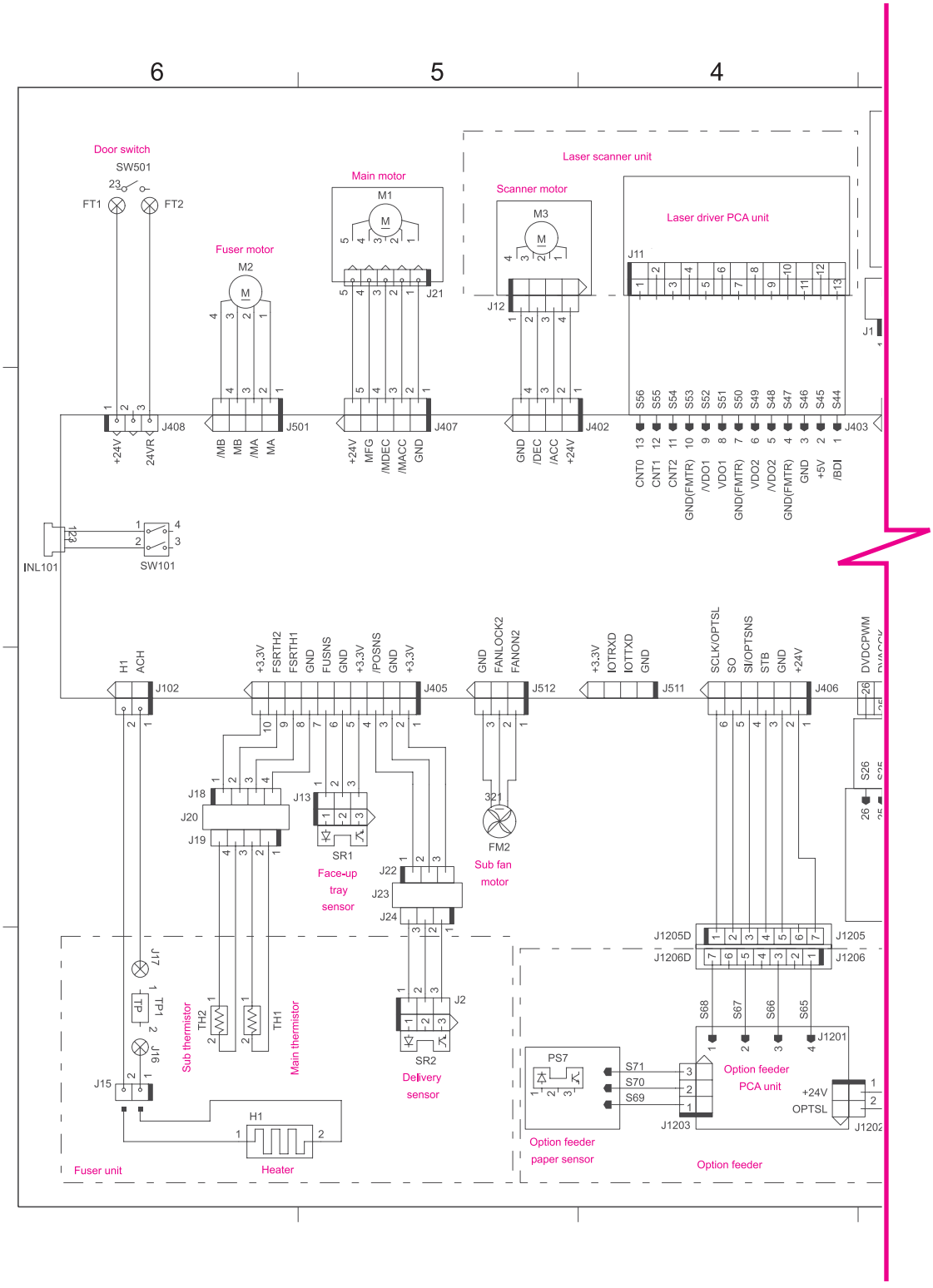


Figure 7-12. **Circuit diagram (1 of 2)**

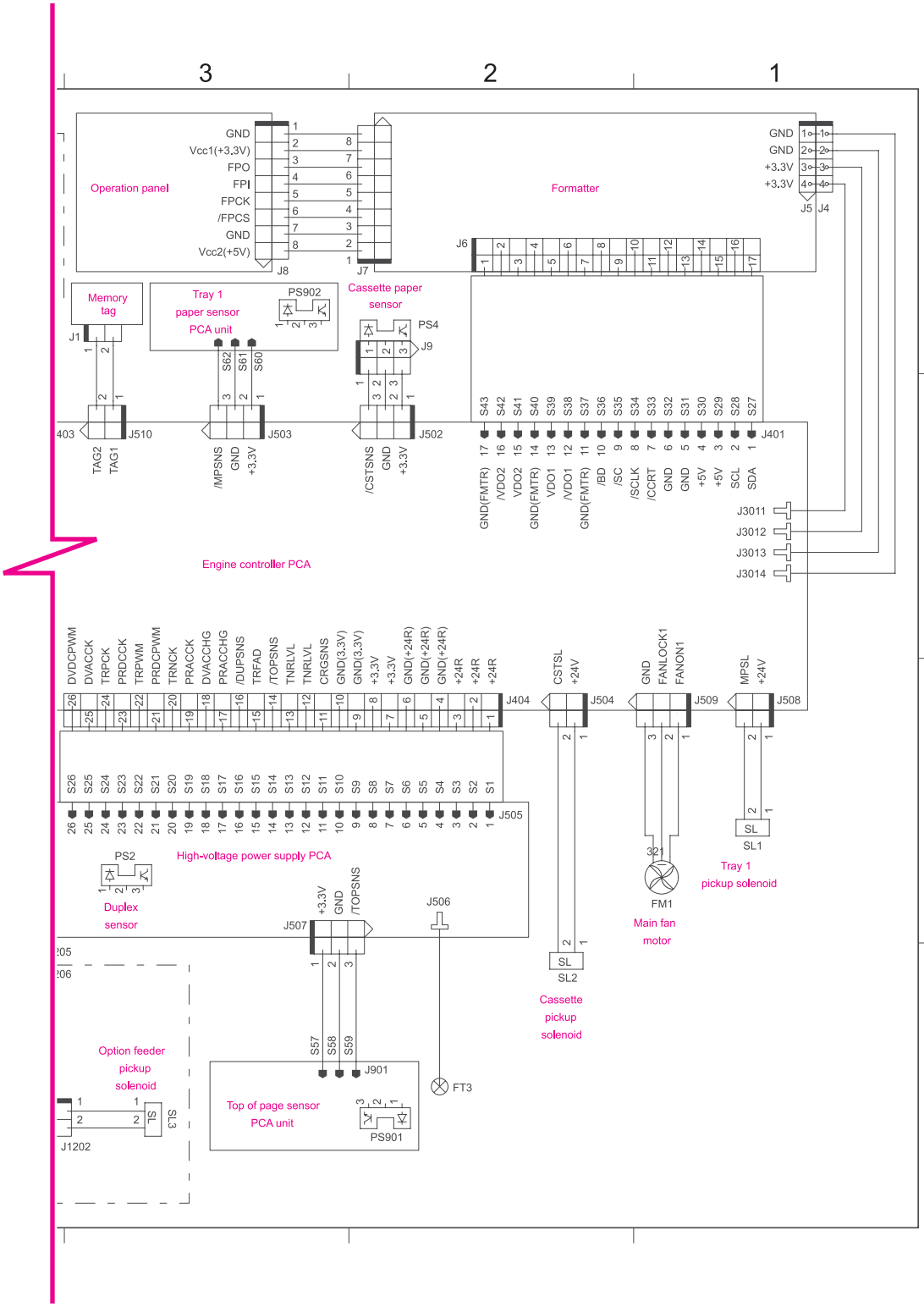


Figure 7-13. **Circuit diagram (2 of 2)**

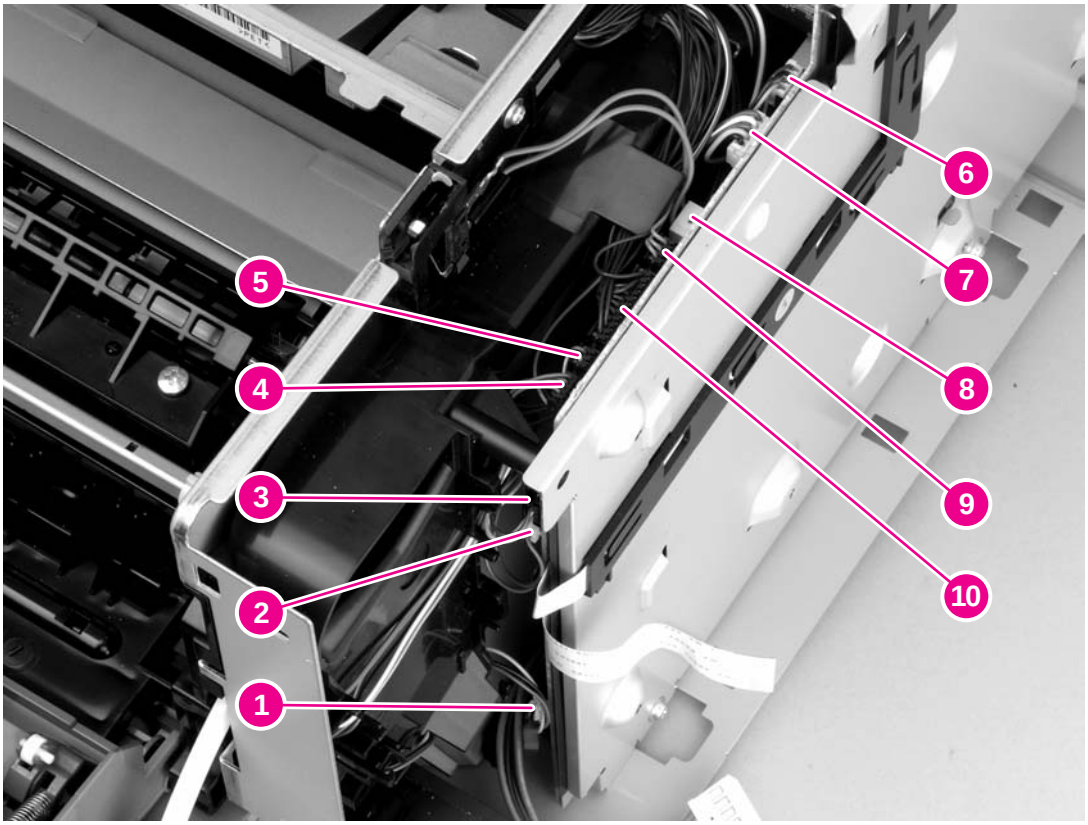


Figure 7-14. **ECU wiring**

1 FM1, main fan motor (J509)
2 Tray 1 pickup solenoid (J508)
3 Tray 1 sensor (J503)
4 Laser/scanner motor (J402)
5 Memory tag reader (J510)
6 Fuser motor (J501)
7 Main motor (J407)
8 Door switch (J408)
9 FM2, sub fan motor (J512)
10 Thermistors, rear-output-bin sensor, delivery sensor (J405)

General timing diagrams

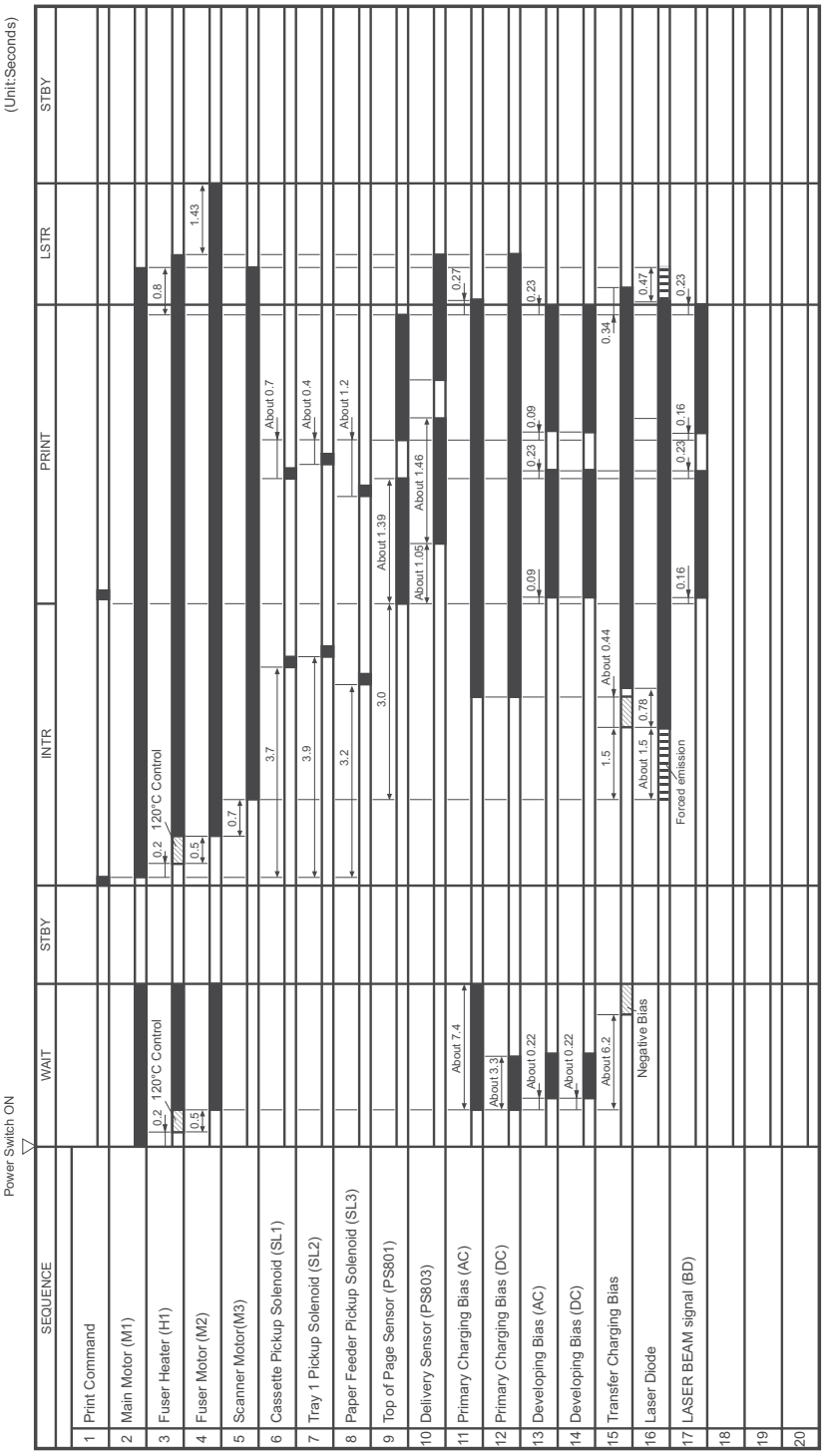


Figure 7-15. **Timing diagram, HP LaserJet 2400 series**

8 Parts and diagrams

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Ordering parts and supplies

Parts

Order replacement parts from the following Web sites:

h30074.www3.hp.com/csn-aux/srvcdlvry/epdo/default/ePDOLogin.asp (technicians)

h20141.www2.hp.com/hpparts (customers)

Related documentation and software

Order documentation and software from the companies listed in the following table; some documentation and software is available at the following Web sites.

Table 8-1. Technical support Web sites

HP Customer Care Online Software drivers, support documentation, and answers to frequently asked questions	www.hp.com/support
HP Technical Training (North America) Classes and schedules	education.itrc.hp.com/TrainerII/en-US/index.jsp

Supplies

Printer supplies are listed in this chapter. Consumables are available directly from HP at the following numbers.

- US: 800-538-8787
- Canada: 800-387-3154 (in Toronto: 416-671-8383)
- United Kingdom: 0734-441212
- Germany: 0130-3322

Contact your local HP Parts Coordinator for other local phone numbers.

Accessories

The following accessories and supplies are available for the HP LaserJet 2400 series.

Product name	Description	Product number	Part number
Paper-handling accessories			
Optional 500-sheet tray and feeder unit	Optional tray to increase paper capacity. Holds Letter, A4, Legal, A5, B5 (JIS), Executive, and 8.5 x 13 inch paper sizes. **NOTE** This tray is included with the HP LaserJet 2430t, 2430tn, and 2430dtn models.	Q5963A	Q5963A
Print cartridges			
HP LaserJet print cartridge	6,000-page cartridge	Q6511A	Q6511A
HP LaserJet print cartridge	12,000-page cartridge	Q6511X	Q6511X
Memory			
32 MB, 100-pin DDR memory DIMM	Boosts the ability of the printer to handle large or complex print jobs.	Q3982A	Q3982A
48 MB, 100-pin DDR memory DIMM	Boosts the ability of the printer to handle large or complex print jobs.	Q6007A	Q6007A
64 MB, 100-pin DDR memory DIMM	Boosts the ability of the printer to handle large or complex print jobs.	Q2625A	Q2625A
128 MB, 100-pin DDR memory DIMM	Boosts the ability of the printer to handle large or complex print jobs.	Q2626A	Q2626A
256 MB, 100-pin DDR memory DIMM	Boosts the ability of the printer to handle large or complex print jobs.	Q2627A	Q2627A

Product name	Description	Product number	Part number
Cables and interfaces			
Enhanced I/O (EIO) cards. HP Jetdirect print server multiprotocol EIO network cards.	HP Jetdirect 620n Fast Ethernet (10/100Base-TX) print server	J7934A	J7934A
Enhanced I/O (EIO) cards. HP Jetdirect print server multiprotocol EIO network cards.	HP Jetdirect 680n 802.11b wireless internal print server	J6058A	J6058A
Enhanced I/O (EIO) cards. HP Jetdirect print server multiprotocol EIO network cards.	HP Jetdirect Connectivity card for USB, serial, and LocalTalk connections	J4135A	J4135A
Parallel cable	2-meter IEEE 1284-B cable	C2950A	C2950A
Parallel cable	3-meter IEEE 1284-B cable	C2951A	C2951A
USB cable	2-meter A to B cable	C6518A	C6518A

Covers

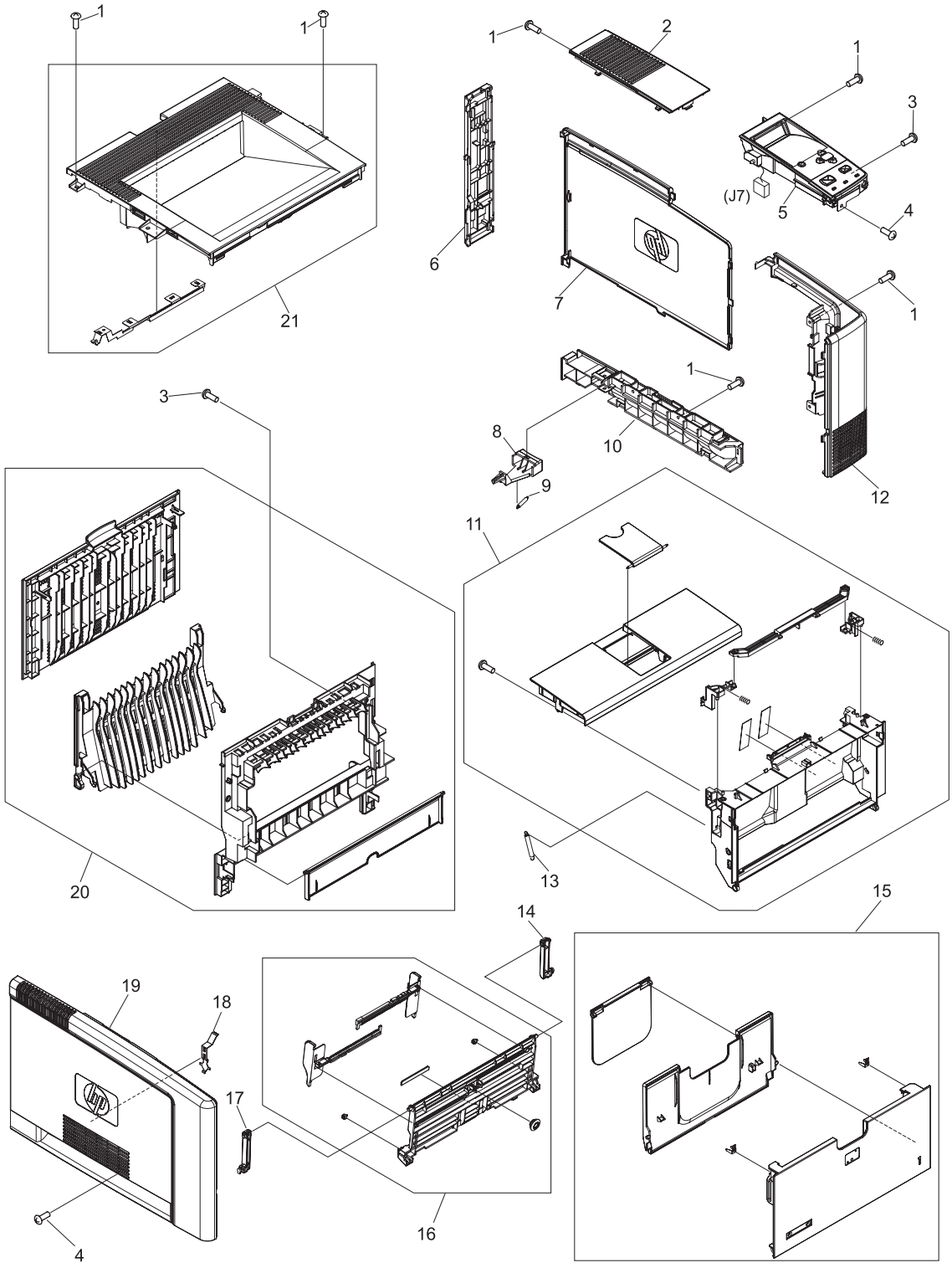

Figure 8-1. **Covers**

Table 8-2. Covers

Ref	Description	Part number	Qty
1	Screw, tapping, M3x6	XA9-1503-000CN	10
2	Cover, right upper	RC1-4159-000CN	1
3	Screw, tapping, truss head, M4x10	XB4-7401-005CN	3
4	Screw, S, M3x8	XA9-1500-000CN	3
5	Control panel	RM1-1519-000CN	1
6	Cover, right rear	RC1-4156-000CN	1
7	Cover, DIMM	RC1-4150-000CN	1
8	Power switch	RC1-4173-000CN	1
9	Spring, tension	RU5-2406-000CN	1
10	Cover, right lower	RC1-4157-000CN	1
11	Cartridge door assembly	RM1-1503-000CN	1
12	Cover, right front	RC1-4151-000CN	1
13	Spring, tension	RU5-2388-000CN	2
14	Hinge, right	RC1-4058-000CN	1
15	Tray 1 cover assembly	RM1-1523-000CN	1
16	Multi-purpose tray assembly	RM1-1490-000CN	1
17	Hinge, left	RC1-4057-000CN	1
18	Plate	RC1-4135-000CN	1
19	Cover, left	RC1-4148-000CN	1
20	Rear cover assembly	RM1-1517-000CN	1
21	Top cover assembly	RM1-1514-000CN	1

Internal components

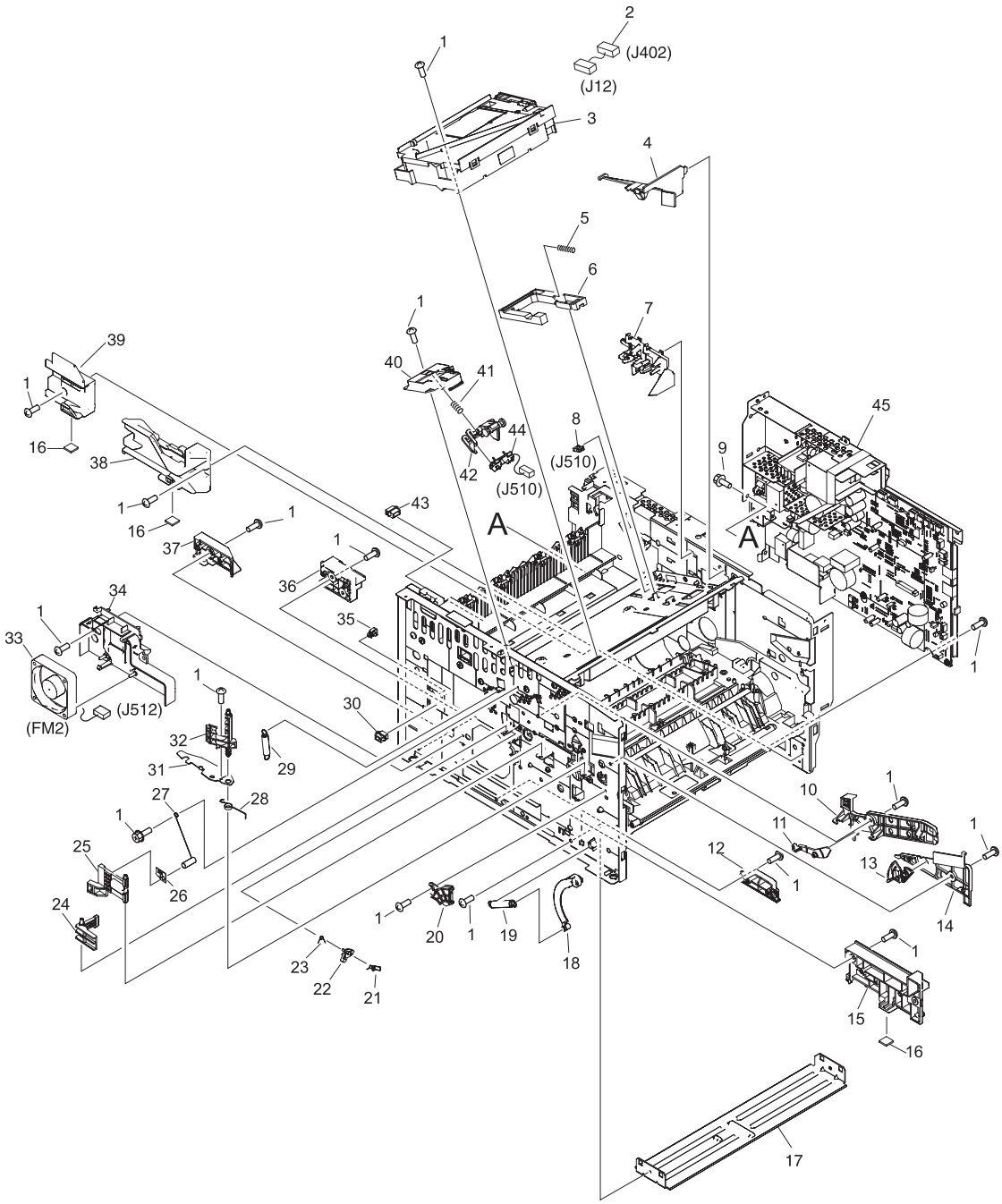

Figure 8-2. **Internal components (1 of 4)**

Table 8-3. Internal components (1 of 4)

Ref	Description	Part number	Qty
1	Screw, S, M3x8	XA9-1500-000CN	30
2	Cable assembly	RM1-1421-000CN	1
3	Laser/scanner assembly	RM1-1521-000CN	1
4	Duct, scanner	RC1-4128-000CN	1
5	Spring, compression	RU5-2404-000CN	1
6	Link, laser shutter	RC1-4125-000CN	1
7	Duct, cartridge	RC1-4129-000CN	1
8	Clip, cable	WT2-5812-000CN	1
9	Screw, w/washer, M3x6	XB2-7300-605CN	1
10	Guide, cartridge, left upper	RC1-4121-000CN	1
11	Lever, cartridge clamp	RC1-4123-000CN	1
12	Guide, cst., left middle	RC1-3949-000CN	1
13	Lever	RC1-4138-000CN	1
14	Guide, cartridge., left lower	RC1-4122-000CN	1
15	Guide, cst., left front	RC1-3948-000CN	1
16	Foot, rubber	RA0-1003-000CN	3
17	Base plate, front	RC1-3946-000CN	1
18	Arm, door	RC1-4055-000CN	1
19	Spring, tension	RU5-2407-000CN	1
20	Guide, door arm	RC1-4056-000CN	1
21	Spring, torsion	RC1-4059-000CN	1
22	Lever	RC1-4060-000CN	1
23	Spring, torsion	RC1-4061-000CN	1
24	Lever, grounding contact	RC1-4065-000CN	1
25	Lever, grounding contact	RC1-4066-000CN	1
26	Spring, leaf	RC1-4067-000CN	1
27	Spring, compression	RC1-4140-000CN	1
28	Spring, torsion	RU5-2410-000CN	1
29	Spring, tension	RU5-2403-000CN	1
30	Connector, snap tight, bk	VS1-7177-003CN	1
31	Plate, protective	RC1-4136-000CN	1
32	Cam, contact	RC1-4137-000CN	1

Table 8-3. Internal components (1 of 4) (continued)

Ref	Description	Part number	Qty
33	Fan, sub	RK2-0573-000CN	1
34	Holder, sub fan	RC1-4134-000CN	1
35	Clip clamp, wire	WT2-5694-000CN	1
36	Holder	RC1-4009-000CN	1
37	Guide, cst., left rear	RC1-3950-000CN	1
38	Guide, cst., right front	RC1-3951-000CN	1
39	Guide, cst., right rear	RC1-3953-000CN	1
40	Stay, tag holder	RC1-4126-000CN	1
41	Spring, compression	RU5-2405-000CN	1
42	Holder, tag	RC1-4127-000CN	1
43	Connector, snap tight, bk	VS1-7177-004CN	1
44	Cable, memory tag	RM1-1422-000CN	1
45	ECU, 110-127 V	RM1-1516-000CN	1
45	ECU, 220-240 V	RM1-1524-000CN	1
(not shown)	Formatter, network versions	Q3955-60003	1
(not shown)	Formatter, non-network versions	Q3953-60001	1

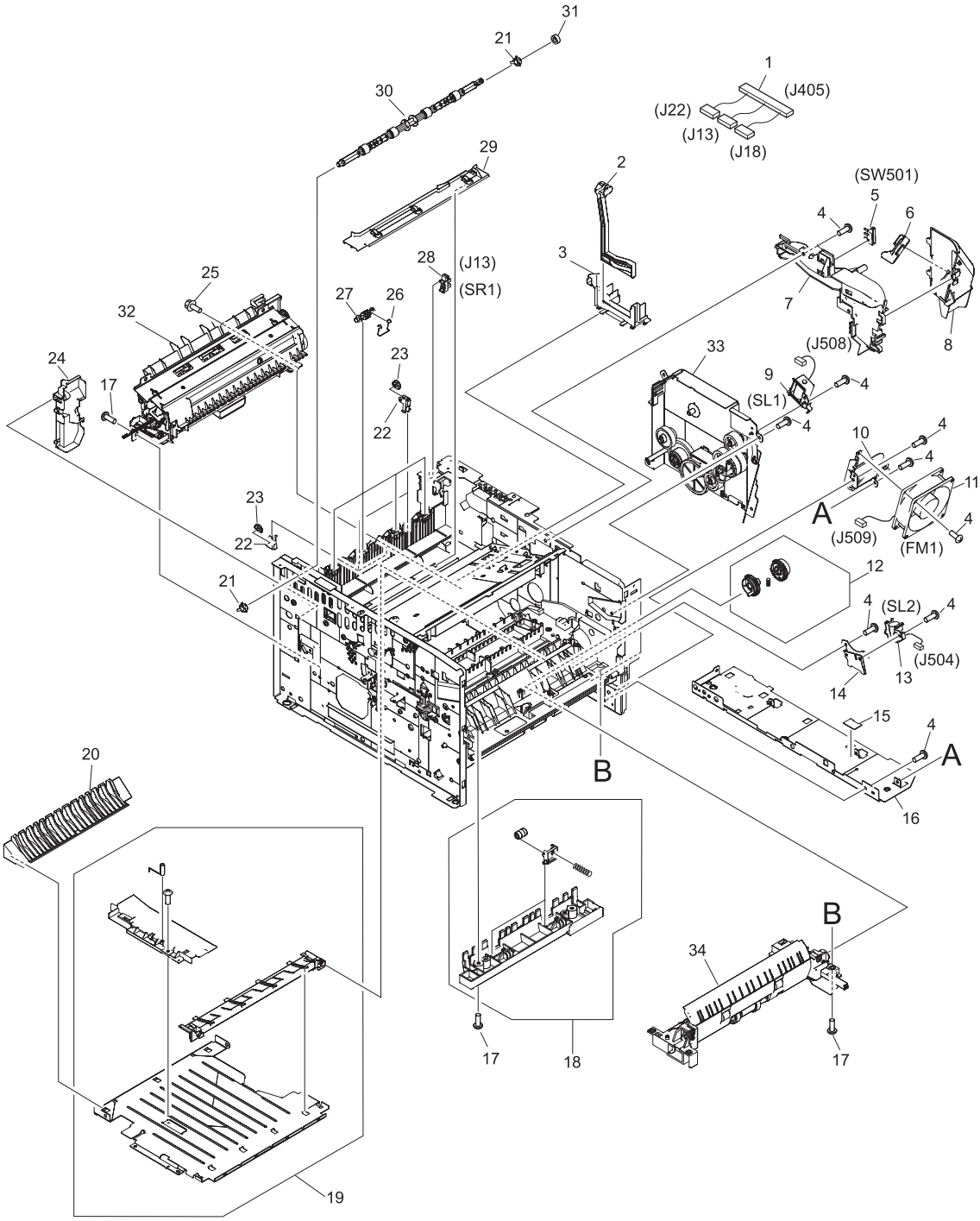

Figure 8-3. **Internal components (2 of 4)**

Table 8-4. Internal components (2 of 4)

Ref	Description	Part number	Qty
1	Cable assembly	RM1-1425-000CN	1
2	Link, switch	RC1-4170-000CN	1
3	Holder, switch link	RC1-4169-000CN	1
4	Screw, RS, M3x8	XA9-1500-000CN	15
5	Microswitch	RK2-0534-000CN	1
6	Lever, test switch	RC1-4132-000CN	1
7	Duct, arm	RC1-4130-000CN	1
8	Duct, cooling	RC1-4131-000CN	1
9	Solenoid, multi-purpose	RK2-0526-000CN	1
10	Holder, main fan	RC1-4133-000CN	1
11	Fan	RK2-0571-000CN	1
12	Pick-up roller gear assembly	RM1-1482-000CN	1
13	Solenoid, cassette	RK2-0528-000CN	1
14	Stay, solenoid	RC1-3955-000CN	1
15	Sheet	RC1-4179-000CN	1
16	Base plate, right	RC1-4113-000CN	1
17	Screw,tapping,truss head,m4x10	XB4-7401-005CN	9
18	Roller stay assembly	RM1-1485-000CN	1
19	Feed guide assembly, lower	RM1-1507-000CN	1
20	Guide, duplex inlet	RC1-4096-000CN	1
21	Bushing	RC1-3665-000CN	2
22	Holder, roller	RC1-3998-000CN	4
23	Roller, delivery	RC1-3996-000CN	4
24	Cover, inner, rear	RC1-4000-000CN	1
25	Screw, w/washer, M3x6	XB2-7300-605CN	1
26	Spring, torsion	RC1-3995-000CN	4
27	Roller, face-down	RC1-3994-000CN	4
28	Ic, photo interrupter	WG8-5624-000CN	1
29	Guide, cable	RC1-4006-000CN	1
30	Roller, face-down	RL1-0580-000CN	1
31	Gear, 15t	RU5-0375-000CN	1
32	Fuser, 110-127 V	RM1-1401-000CN	1

Table 8-4. Internal components (2 of 4) (continued)

Ref	Description	Part number	Qty
32	Fuser, 220-240 V	RM1-1531-000CN	1
33	Gear assembly	RM1-1412-000CN	1
34	Tray 2 pickup assembly	RM1-1481-000CN	1

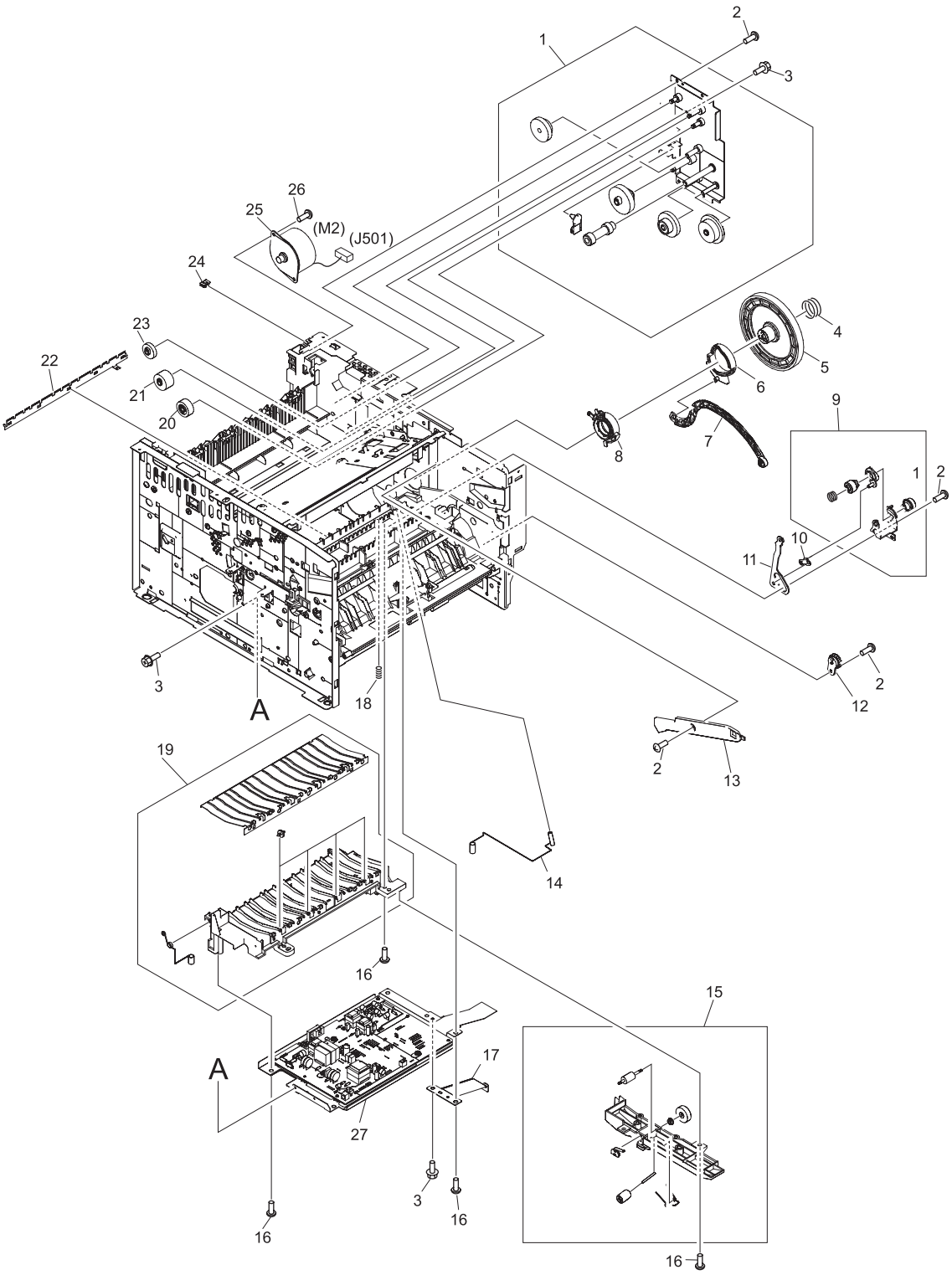

Figure 8-4. **Internal components (3 of 4)**

Table 8-5. Internal components (3 of 4)

Ref	Description	Part number	Qty
1	Fixing drive side plate assembly	RM1-1500-000CN	1
2	Screw, S, M3x8	XA9-1500-000CN	7
3	Screw, w/washer, M3x6	XB2-7300-605CN	5
4	Spring, compression	RU5-2401-000CN	1
5	Gear, 201t	RU5-0389-000CN	1
6	Cam	RC1-4114-000CN	1
7	Lever, coupling	RC1-4115-000CN	1
8	Bushing, inner	RC1-4105-000CN	1
9	Drive release assembly	RM1-1522-000CN	1
10	Link, drive release	RC1-4117-000CN	1
11	Lever, drive release	RC1-4116-000CN	1
12	Gear, 17t	RA0-1172-000CN	1
13	Guide, cartridge, right upper	RC1-4106-000CN	1
14	Spring, compression	RC1-4185-000CN	1
15	Position guide assembly	RM1-1506-000CN	1
16	Screw, tapping, truss head, M4x10	XB4-7401-005CN	8
17	Plate, grounding	RC1-4085-000CN	1
18	Spring, compression	RU5-2408-000CN	1
19	Feed guide assembly	RM1-1504-000CN	1
20	Gear, 20t	RU5-0378-000CN	1
21	Gear, 28t	RU5-0377-000CN	1
22	Eliminator, static charge	RC1-4025-000CN	1
23	Gear, 19t	RU5-0379-000CN	1
24	Clip, cord	WT2-5056-000CN	1
25	Motor, stepping	RK2-0523-000CN	1
26	Screw, tapping, M3x6	XA9-1503-000CN	1
27	Power supply	RM1-1505-000CN	1

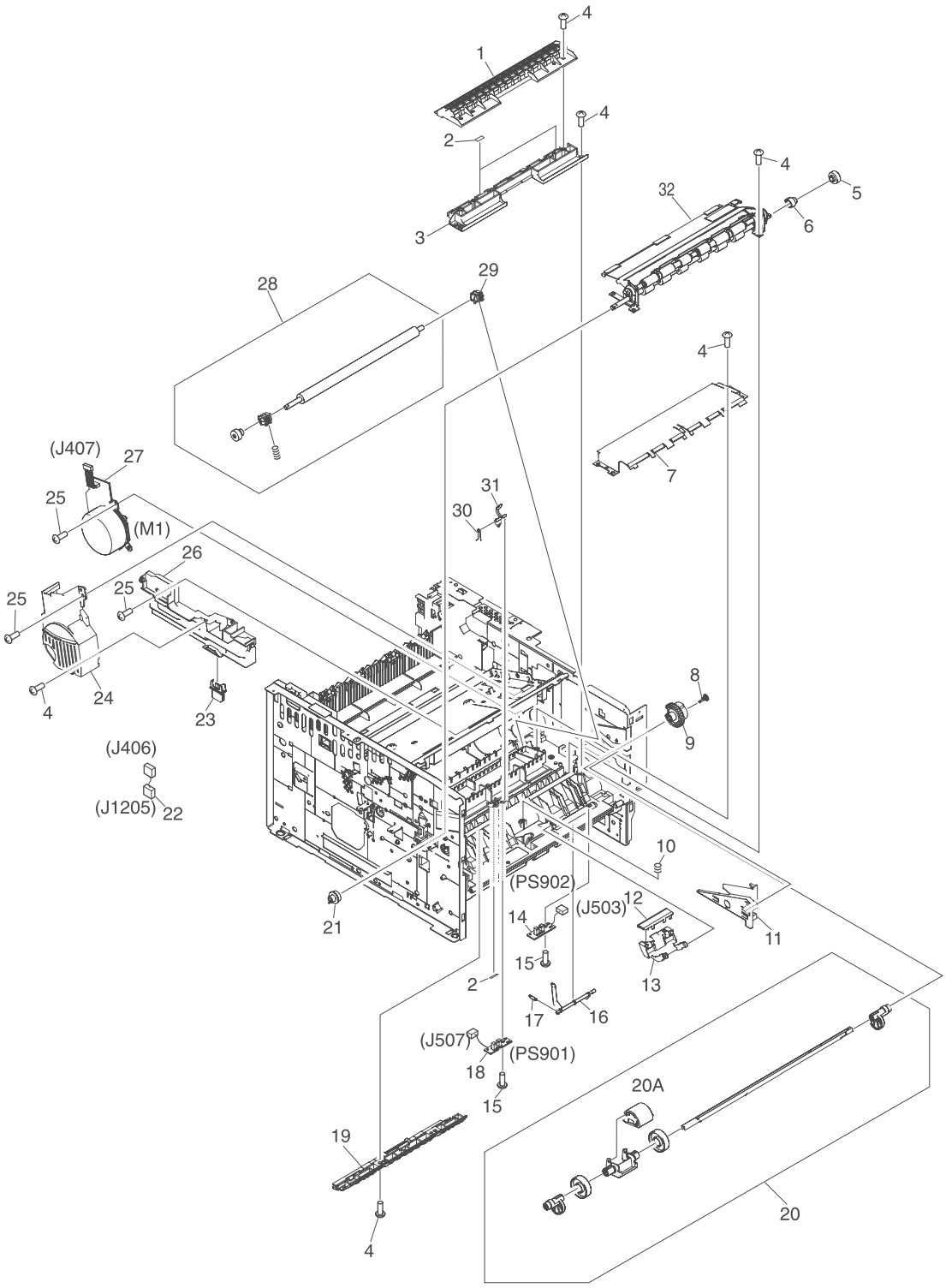

Figure 8-5. **Internal components (4 of 4)**

Table 8-6. Internal components (4 of 4)

Ref	Description	Part number	Qty
1	Cover, registration	RC1-3936-000CN	1
2	Sheet, static charge	RC1-4070-000CN	1
3	Guide, feed	RC1-3935-000CN	1
4	Screw, tapping, truss head, M4x10	XB4-7401-005CN	13
5	Gear, 14t	RU5-0409-000CN	1
6	Stopper, gear	RC1-4189-000CN	1
7	Plate, transfer, lower	RL1-0581-000CN	1
8	Cap, continuity	RA0-1068-000CN	1
9	Gear, 30t	RU5-0366-000CN	1
10	Spring, compression	RU5-2385-000CN	1
11	Guide, cartridge, right lower	RC1-4107-000CN	1
12	Pad, separation	RC1-0939-000CN	1
13	Arm, pad	RC1-3937-000CN	1
14	Sensor pcb assembly	RM1-1435-000CN	1
15	Screw, p, M3x8	XB4-5300-805CN	2
16	Lever, sensor	RC1-3939-000CN	1
17	Spring, torsion	RU5-2386-000CN	1
18	Registration sensor pcb assembly	RM1-1416-000CN	1
19	Guide	RC1-4083-000CN	1
20	Tray 1 pick-up shaft assembly	RM1-1484-000CN	1
20A	Roller, tray 1 pick-up	RL1-0568-000CN	1
21	Gear, 12t	RU5-0400-000CN	1
22	Cable assembly	RM1-1426-000CN	1
23	Connector, drawer	VS1-7257-007CN	1
24	Cover, main motor	RC1-4108-000CN	1
25	Screw, RS, M3x8	XA9-1500-000CN	7
26	Cover, gear	RC1-3954-000CN	1
27	Motor, dc, 26.2 W	RL1-0587-000CN	1
28	Transfer roller assembly	RM1-1508-000CN	1
29	Bushing, transfer, right	RC1-0922-000CN	1
30	Spring, torsion	RC1-4028-000CN	1
31	Lever, sensor	RC1-4027-000CN	1

Table 8-6. Internal components (4 of 4) (continued)

Ref	Description	Part number	Qty
32	Registration assembly	RM1-1502-000CN	1

Tray 2 pickup assembly

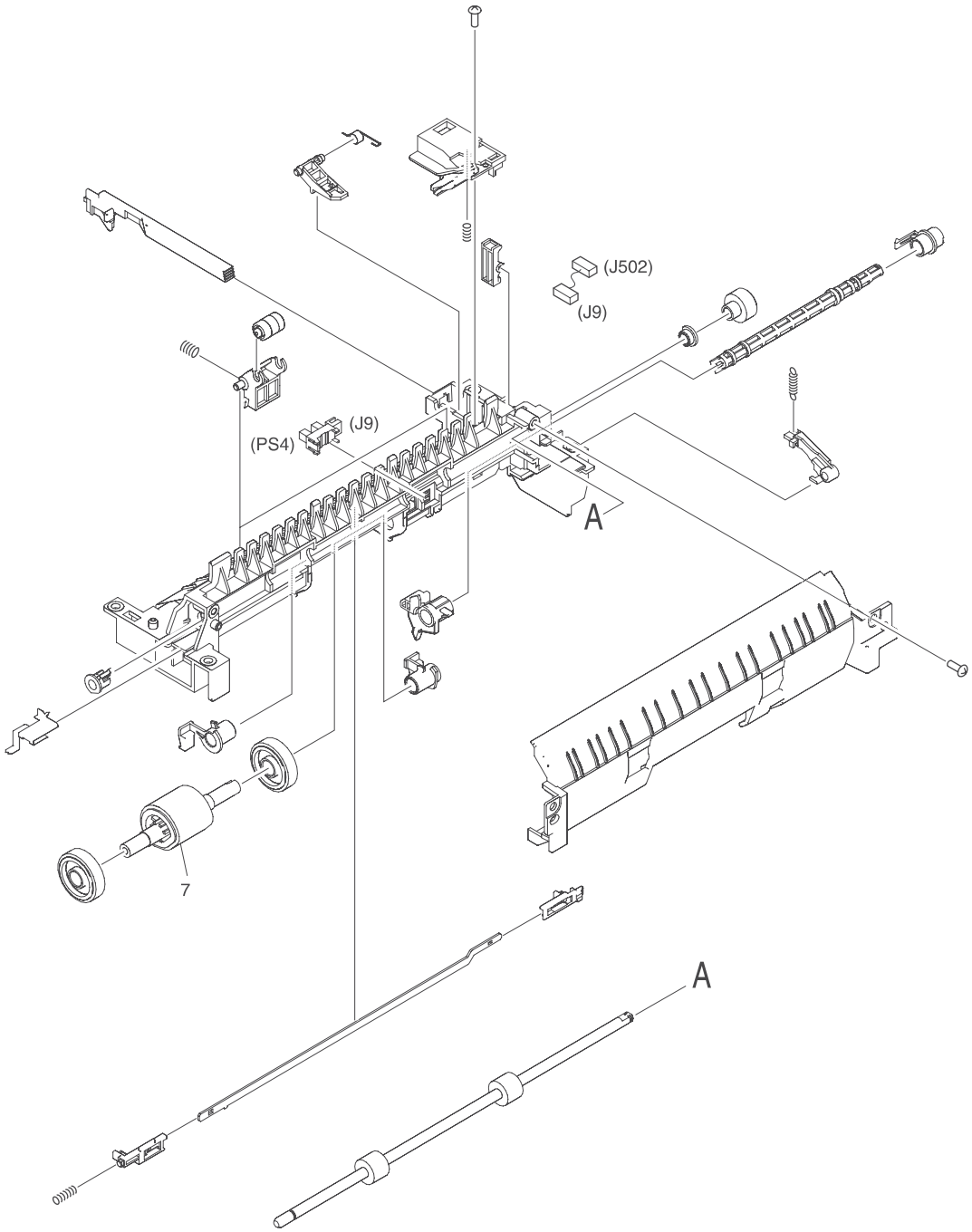

Figure 8-6. **Tray 2 pickup assembly**

Table 8-7. Tray 2 pickup assembly

Ref	Description	Part number	Qty
	Tray 2 pickup assembly	RM1-1481-000CN	1
7	Tray 2 pickup roller	RL1-0542-000CN	1

Alphabetical parts list

Table 8-8. Alphabetical parts list

Description	Part number	Table and page
Arm, door	RC1-4055-000CN	Table 8-3 on page 241
Arm, pad	RC1-3937-000CN	Table 8-6 on page 251
Base plate, front	RC1-3946-000CN	Table 8-3 on page 241
Base plate, right	RC1-4113-000CN	Table 8-4 on page 245
Bushing	RC1-3665-000CN	Table 8-4 on page 245
Bushing, inner	RC1-4105-000CN	Table 8-5 on page 249
Bushing, transfer, right	RC1-0922-000CN	Table 8-6 on page 251
Cable assembly	RM1-1421-000CN	Table 8-3 on page 241
Cable assembly	RM1-1425-000CN	Table 8-4 on page 245
Cable assembly	RM1-1426-000CN	Table 8-6 on page 251
Cable, memory tag	RM1-1422-000CN	Table 8-3 on page 242
Cam	RC1-4114-000CN	Table 8-5 on page 249
Cam, contact	RC1-4137-000CN	Table 8-3 on page 241
Cap, continuity	RA0-1068-000CN	Table 8-6 on page 251
Cartridge door assembly	RM1-1503-000CN	Table 8-2 on page 239
Clip clamp, wire	WT2-5694-000CN	Table 8-3 on page 242
Clip, cable	WT2-5812-000CN	Table 8-3 on page 241
Clip, cord	WT2-5056-000CN	Table 8-5 on page 249
Connector, drawer	VS1-7257-007CN	Table 8-6 on page 251
Connector, snap tight, bk	VS1-7177-003CN	Table 8-3 on page 241
Connector, snap tight, bk	VS1-7177-004CN	Table 8-3 on page 242
Control panel	RM1-1519-000CN	Table 8-2 on page 239
Cover, DIMM	RC1-4150-000CN	Table 8-2 on page 239
Cover, gear	RC1-3954-000CN	Table 8-6 on page 251
Cover, inner, rear	RC1-4000-000CN	Table 8-4 on page 245
Cover, left	RC1-4148-000CN	Table 8-2 on page 239
Cover, main motor	RC1-4108-000CN	Table 8-6 on page 251
Cover, registration	RC1-3936-000CN	Table 8-6 on page 251
Cover, right front	RC1-4151-000CN	Table 8-2 on page 239
Cover, right lower	RC1-4157-000CN	Table 8-2 on page 239

Table 8-8. Alphabetical parts list (continued)

Description	Part number	Table and page
Cover, right rear	RC1-4156-000CN	Table 8-2 on page 239
Cover, right upper	RC1-4159-000CN	Table 8-2 on page 239
Drive release assembly	RM1-1522-000CN	Table 8-5 on page 249
Duct, arm	RC1-4130-000CN	Table 8-4 on page 245
Duct, cartridge	RC1-4129-000CN	Table 8-3 on page 241
Duct, cooling	RC1-4131-000CN	Table 8-4 on page 245
Duct, scanner	RC1-4128-000CN	Table 8-3 on page 241
ECU, 110-127 V	RM1-1516-000CN	Table 8-3 on page 242
ECU, 220-240 V	RM1-1524-000CN	Table 8-3 on page 242
Eliminator, static charge	RC1-4025-000CN	Table 8-5 on page 249
Fan	RK2-0571-000CN	Table 8-4 on page 245
Fan, sub	RK2-0573-000CN	Table 8-3 on page 242
Feed guide assembly	RM1-1504-000CN	Table 8-5 on page 249
Feed guide assembly, lower	RM1-1507-000CN	Table 8-4 on page 245
Fixing drive side plate assembly	RM1-1500-000CN	Table 8-5 on page 249
Foot, rubber	RA0-1003-000CN	Table 8-3 on page 241
Formatter, network versions	Q3955-60003	Table 8-3 on page 242
Formatter, non-network versions	Q3953-60001	Table 8-3 on page 242
Fuser, 110-127 V	RM1-1401-000CN	Table 8-4 on page 245
Fuser, 220-240 V	RM1-1531-000CN	Table 8-4 on page 246
Gear assembly	RM1-1412-000CN	Table 8-4 on page 246
Gear, 12t	RU5-0400-000CN	Table 8-6 on page 251
Gear, 14t	RU5-0409-000CN	Table 8-6 on page 251
Gear, 15t	RU5-0375-000CN	Table 8-4 on page 245
Gear, 17t	RA0-1172-000CN	Table 8-5 on page 249
Gear, 19t	RU5-0379-000CN	Table 8-5 on page 249
Gear, 201t	RU5-0389-000CN	Table 8-5 on page 249
Gear, 20t	RU5-0378-000CN	Table 8-5 on page 249
Gear, 28t	RU5-0377-000CN	Table 8-5 on page 249
Gear, 30t	RU5-0366-000CN	Table 8-6 on page 251
Guide	RC1-4083-000CN	Table 8-6 on page 251
Guide, cable	RC1-4006-000CN	Table 8-4 on page 245
Guide, cartridge, left upper	RC1-4121-000CN	Table 8-3 on page 241

Table 8-8. Alphabetical parts list (continued)

Description	Part number	Table and page
Guide, cartridge, right lower	RC1-4107-000CN	Table 8-6 on page 251
Guide, cartridge, right upper	RC1-4106-000CN	Table 8-5 on page 249
Guide, cartridge., left lower	RC1-4122-000CN	Table 8-3 on page 241
Guide, cst., left front	RC1-3948-000CN	Table 8-3 on page 241
Guide, cst., left middle	RC1-3949-000CN	Table 8-3 on page 241
Guide, cst., left rear	RC1-3950-000CN	Table 8-3 on page 242
Guide, cst., right front	RC1-3951-000CN	Table 8-3 on page 242
Guide, cst., right rear	RC1-3953-000CN	Table 8-3 on page 242
Guide, door arm	RC1-4056-000CN	Table 8-3 on page 241
Guide, duplex inlet	RC1-4096-000CN	Table 8-4 on page 245
Guide, feed	RC1-3935-000CN	Table 8-6 on page 251
Hinge, left	RC1-4057-000CN	Table 8-2 on page 239
Hinge, right	RC1-4058-000CN	Table 8-2 on page 239
Holder	RC1-4009-000CN	Table 8-3 on page 242
Holder, main fan	RC1-4133-000CN	Table 8-4 on page 245
Holder, roller	RC1-3998-000CN	Table 8-4 on page 245
Holder, sub fan	RC1-4134-000CN	Table 8-3 on page 242
Holder, switch link	RC1-4169-000CN	Table 8-4 on page 245
Holder, tag	RC1-4127-000CN	Table 8-3 on page 242
Ic, photo interrupter	WG8-5624-000CN	Table 8-4 on page 245
Laser/scanner assembly	RM1-1521-000CN	Table 8-3 on page 241
Lever	RC1-4138-000CN	Table 8-3 on page 241
Lever	RC1-4060-000CN	Table 8-3 on page 241
Lever, cartridge clamp	RC1-4123-000CN	Table 8-3 on page 241
Lever, coupling	RC1-4115-000CN	Table 8-5 on page 249
Lever, drive release	RC1-4116-000CN	Table 8-5 on page 249
Lever, grounding contact	RC1-4065-000CN	Table 8-3 on page 241
Lever, grounding contact	RC1-4066-000CN	Table 8-3 on page 241
Lever, sensor	RC1-3939-000CN	Table 8-6 on page 251
Lever, sensor	RC1-4027-000CN	Table 8-6 on page 251
Lever, test switch	RC1-4132-000CN	Table 8-4 on page 245
Link, drive release	RC1-4117-000CN	Table 8-5 on page 249
Link, laser shutter	RC1-4125-000CN	Table 8-3 on page 241

Table 8-8. Alphabetical parts list (continued)

Description	Part number	Table and page
Link, switch	RC1-4170-000CN	Table 8-4 on page 245
Microswitch	RK2-0534-000CN	Table 8-4 on page 245
Motor, dc, 26.2 W	RL1-0587-000CN	Table 8-6 on page 251
Motor, stepping	RK2-0523-000CN	Table 8-5 on page 249
Multi-purpose tray assembly	RM1-1490-000CN	Table 8-2 on page 239
Pad, separation	RC1-0939-000CN	Table 8-6 on page 251
Pick-up roller gear assembly	RM1-1482-000CN	Table 8-4 on page 245
Plate	RC1-4135-000CN	Table 8-2 on page 239
Plate, grounding	RC1-4085-000CN	Table 8-5 on page 249
Plate, protective	RC1-4136-000CN	Table 8-3 on page 241
Plate, transfer, lower	RL1-0581-000CN	Table 8-6 on page 251
Position guide assembly	RM1-1506-000CN	Table 8-5 on page 249
Power supply	RM1-1505-000CN	Table 8-5 on page 249
Power switch	RC1-4173-000CN	Table 8-2 on page 239
Rear cover assembly	RM1-1517-000CN	Table 8-2 on page 239
Registration assembly	RM1-1502-000CN	Table 8-6 on page 252
Registration sensor pcb assembly	RM1-1416-000CN	Table 8-6 on page 251
Roller stay assembly	RM1-1485-000CN	Table 8-4 on page 245
Roller, delivery	RC1-3996-000CN	Table 8-4 on page 245
Roller, face-down	RC1-3994-000CN	Table 8-4 on page 245
Roller, face-down	RL1-0580-000CN	Table 8-4 on page 245
Roller, tray 1 pick-up	RL1-0568-000CN	Table 8-6 on page 251
Screw, p, M3x8	XB4-5300-805CN	Table 8-6 on page 251
Screw, RS, M3x8	XA9-1500-000CN	Table 8-4 on page 245
Screw, RS, M3x8	XA9-1500-000CN	Table 8-6 on page 251
Screw, S, M3x8	XA9-1500-000CN	Table 8-2 on page 239
Screw, S, M3x8	XA9-1500-000CN	Table 8-3 on page 241
Screw, S, M3x8	XA9-1500-000CN	Table 8-5 on page 249
Screw, tapping, M3x6	XA9-1503-000CN	Table 8-2 on page 239
Screw, tapping, M3x6	XA9-1503-000CN	Table 8-5 on page 249
Screw, tapping, truss head, M4x10	XB4-7401-005CN	Table 8-2 on page 239
Screw, tapping, truss head, M4x10	XB4-7401-005CN	Table 8-5 on page 249
Screw, tapping, truss head, M4x10	XB4-7401-005CN	Table 8-6 on page 251

Table 8-8. Alphabetical parts list (continued)

Description	Part number	Table and page
Screw, w/washer, M3x6	XB2-7300-605CN	Table 8-3 on page 241
Screw, w/washer, M3x6	XB2-7300-605CN	Table 8-4 on page 245
Screw, w/washer, M3x6	XB2-7300-605CN	Table 8-5 on page 249
Screw,tapping,truss head,m4x10	XB4-7401-005CN	Table 8-4 on page 245
Sensor pcb assembly	RM1-1435-000CN	Table 8-6 on page 251
Sheet	RC1-4179-000CN	Table 8-4 on page 245
Sheet, static charge	RC1-4070-000CN	Table 8-6 on page 251
Solenoid, cassette	RK2-0528-000CN	Table 8-4 on page 245
Solenoid, multi-purpose	RK2-0526-000CN	Table 8-4 on page 245
Spring, compression	RU5-2404-000CN	Table 8-3 on page 241
Spring, compression	RC1-4140-000CN	Table 8-3 on page 241
Spring, compression	RU5-2405-000CN	Table 8-3 on page 242
Spring, compression	RU5-2401-000CN	Table 8-5 on page 249
Spring, compression	RC1-4185-000CN	Table 8-5 on page 249
Spring, compression	RU5-2408-000CN	Table 8-5 on page 249
Spring, compression	RU5-2385-000CN	Table 8-6 on page 251
Spring, leaf	RC1-4067-000CN	Table 8-3 on page 241
Spring, tension	RU5-2406-000CN	Table 8-2 on page 239
Spring, tension	RU5-2388-000CN	Table 8-2 on page 239
Spring, tension	RU5-2407-000CN	Table 8-3 on page 241
Spring, tension	RU5-2403-000CN	Table 8-3 on page 241
Spring, torsion	RC1-4059-000CN	Table 8-3 on page 241
Spring, torsion	RC1-4061-000CN	Table 8-3 on page 241
Spring, torsion	RU5-2410-000CN	Table 8-3 on page 241
Spring, torsion	RC1-3995-000CN	Table 8-4 on page 245
Spring, torsion	RU5-2386-000CN	Table 8-6 on page 251
Spring, torsion	RC1-4028-000CN	Table 8-6 on page 251
Stay, solenoid	RC1-3955-000CN	Table 8-4 on page 245
Stay, tag holder	RC1-4126-000CN	Table 8-3 on page 242
Stopper, gear	RC1-4189-000CN	Table 8-6 on page 251
Top cover assembly	RM1-1514-000CN	Table 8-2 on page 239
Transfer roller assembly	RM1-1508-000CN	Table 8-6 on page 251
Tray 1 cover assembly	RM1-1523-000CN	Table 8-2 on page 239

Table 8-8. Alphabetical parts list (continued)

Description	Part number	Table and page
Tray 1 pick-up shaft assembly	RM1-1484-000CN	Table 8-6 on page 251
Tray 2 pickup assembly	RM1-1481-000CN	Table 8-4 on page 246
Tray 2 pickup assembly	RM1-1481-000CN	Table 8-7 on page 255
Tray 2 pickup roller	RL1-0542-000CN	Table 8-7 on page 255

Numerical parts list

Table 8-9. Numerical parts list

Part number	Description	Table and page
Q3953-60001	Formatter, non-network versions	Table 8-3 on page 242
Q3955-60003	Formatter, network versions	Table 8-3 on page 242
RA0-1003-000CN	Foot, rubber	Table 8-3 on page 241
RA0-1068-000CN	Cap, continuity	Table 8-6 on page 251
RA0-1172-000CN	Gear, 17t	Table 8-5 on page 249
RC1-0922-000CN	Bushing, transfer, right	Table 8-6 on page 251
RC1-0939-000CN	Pad, separation	Table 8-6 on page 251
RC1-3665-000CN	Bushing	Table 8-4 on page 245
RC1-3935-000CN	Guide, feed	Table 8-6 on page 251
RC1-3936-000CN	Cover, registration	Table 8-6 on page 251
RC1-3937-000CN	Arm, pad	Table 8-6 on page 251
RC1-3939-000CN	Lever, sensor	Table 8-6 on page 251
RC1-3946-000CN	Base plate, front	Table 8-3 on page 241
RC1-3948-000CN	Guide, cst., left front	Table 8-3 on page 241
RC1-3949-000CN	Guide, cst., left middle	Table 8-3 on page 241
RC1-3950-000CN	Guide, cst., left rear	Table 8-3 on page 242
RC1-3951-000CN	Guide, cst., right front	Table 8-3 on page 242
RC1-3953-000CN	Guide, cst., right rear	Table 8-3 on page 242
RC1-3954-000CN	Cover, gear	Table 8-6 on page 251
RC1-3955-000CN	Stay, solenoid	Table 8-4 on page 245
RC1-3994-000CN	Roller, face-down	Table 8-4 on page 245
RC1-3995-000CN	Spring, torsion	Table 8-4 on page 245
RC1-3996-000CN	Roller, delivery	Table 8-4 on page 245
RC1-3998-000CN	Holder, roller	Table 8-4 on page 245
RC1-4000-000CN	Cover, inner, rear	Table 8-4 on page 245
RC1-4006-000CN	Guide, cable	Table 8-4 on page 245
RC1-4009-000CN	Holder	Table 8-3 on page 242
RC1-4025-000CN	Eliminator, static charge	Table 8-5 on page 249
RC1-4027-000CN	Lever, sensor	Table 8-6 on page 251
RC1-4028-000CN	Spring, torsion	Table 8-6 on page 251

Table 8-9. Numerical parts list (continued)

Part number	Description	Table and page
RC1-4055-000CN	Arm, door	Table 8-3 on page 241
RC1-4056-000CN	Guide, door arm	Table 8-3 on page 241
RC1-4057-000CN	Hinge, left	Table 8-2 on page 239
RC1-4058-000CN	Hinge, right	Table 8-2 on page 239
RC1-4059-000CN	Spring, torsion	Table 8-3 on page 241
RC1-4060-000CN	Lever	Table 8-3 on page 241
RC1-4061-000CN	Spring, torsion	Table 8-3 on page 241
RC1-4065-000CN	Lever, grounding contact	Table 8-3 on page 241
RC1-4066-000CN	Lever, grounding contact	Table 8-3 on page 241
RC1-4067-000CN	Spring, leaf	Table 8-3 on page 241
RC1-4070-000CN	Sheet, static charge	Table 8-6 on page 251
RC1-4083-000CN	Guide	Table 8-6 on page 251
RC1-4085-000CN	Plate, grounding	Table 8-5 on page 249
RC1-4096-000CN	Guide, duplex inlet	Table 8-4 on page 245
RC1-4105-000CN	Bushing, inner	Table 8-5 on page 249
RC1-4106-000CN	Guide, cartridge, right upper	Table 8-5 on page 249
RC1-4107-000CN	Guide, cartridge, right lower	Table 8-6 on page 251
RC1-4108-000CN	Cover, main motor	Table 8-6 on page 251
RC1-4113-000CN	Base plate, right	Table 8-4 on page 245
RC1-4114-000CN	Cam	Table 8-5 on page 249
RC1-4115-000CN	Lever, coupling	Table 8-5 on page 249
RC1-4116-000CN	Lever, drive release	Table 8-5 on page 249
RC1-4117-000CN	Link, drive release	Table 8-5 on page 249
RC1-4121-000CN	Guide, cartridge, left upper	Table 8-3 on page 241
RC1-4122-000CN	Guide, cartridge., left lower	Table 8-3 on page 241
RC1-4123-000CN	Lever, cartridge clamp	Table 8-3 on page 241
RC1-4125-000CN	Link, laser shutter	Table 8-3 on page 241
RC1-4126-000CN	Stay, tag holder	Table 8-3 on page 242
RC1-4127-000CN	Holder, tag	Table 8-3 on page 242
RC1-4128-000CN	Duct, scanner	Table 8-3 on page 241
RC1-4129-000CN	Duct, cartridge	Table 8-3 on page 241
RC1-4130-000CN	Duct, arm	Table 8-4 on page 245
RC1-4131-000CN	Duct, cooling	Table 8-4 on page 245

Table 8-9. Numerical parts list (continued)

Part number	Description	Table and page
RC1-4132-000CN	Lever, test switch	Table 8-4 on page 245
RC1-4133-000CN	Holder, main fan	Table 8-4 on page 245
RC1-4134-000CN	Holder, sub fan	Table 8-3 on page 242
RC1-4135-000CN	Plate	Table 8-2 on page 239
RC1-4136-000CN	Plate, protective	Table 8-3 on page 241
RC1-4137-000CN	Cam, contact	Table 8-3 on page 241
RC1-4138-000CN	Lever	Table 8-3 on page 241
RC1-4140-000CN	Spring, compression	Table 8-3 on page 241
RC1-4148-000CN	Cover, left	Table 8-2 on page 239
RC1-4150-000CN	Cover, DIMM	Table 8-2 on page 239
RC1-4151-000CN	Cover, right front	Table 8-2 on page 239
RC1-4156-000CN	Cover, right rear	Table 8-2 on page 239
RC1-4157-000CN	Cover, right lower	Table 8-2 on page 239
RC1-4159-000CN	Cover, right upper	Table 8-2 on page 239
RC1-4169-000CN	Holder, switch link	Table 8-4 on page 245
RC1-4170-000CN	Link, switch	Table 8-4 on page 245
RC1-4173-000CN	Power switch	Table 8-2 on page 239
RC1-4179-000CN	Sheet	Table 8-4 on page 245
RC1-4185-000CN	Spring, compression	Table 8-5 on page 249
RC1-4189-000CN	Stopper, gear	Table 8-6 on page 251
RK2-0523-000CN	Motor, stepping	Table 8-5 on page 249
RK2-0526-000CN	Solenoid, multi-purpose	Table 8-4 on page 245
RK2-0528-000CN	Solenoid, cassette	Table 8-4 on page 245
RK2-0534-000CN	Microswitch	Table 8-4 on page 245
RK2-0571-000CN	Fan	Table 8-4 on page 245
RK2-0573-000CN	Fan, sub	Table 8-3 on page 242
RL1-0542-000CN	Tray 2 pickup roller	Table 8-7 on page 255
RL1-0568-000CN	Roller, tray 1 pick-up	Table 8-6 on page 251
RL1-0580-000CN	Roller, face-down	Table 8-4 on page 245
RL1-0581-000CN	Plate, transfer, lower	Table 8-6 on page 251
RL1-0587-000CN	Motor, dc, 26.2 W	Table 8-6 on page 251
RM1-1401-000CN	Fuser, 110-127 V	Table 8-4 on page 245
RM1-1412-000CN	Gear assembly	Table 8-4 on page 246

Table 8-9. Numerical parts list (continued)

Part number	Description	Table and page
RM1-1416-000CN	Registration sensor pcb assembly	Table 8-6 on page 251
RM1-1421-000CN	Cable assembly	Table 8-3 on page 241
RM1-1422-000CN	Cable, memory tag	Table 8-3 on page 242
RM1-1425-000CN	Cable assembly	Table 8-4 on page 245
RM1-1426-000CN	Cable assembly	Table 8-6 on page 251
RM1-1435-000CN	Sensor pcb assembly	Table 8-6 on page 251
RM1-1481-000CN	Tray 2 pickup assembly	Table 8-4 on page 246
RM1-1481-000CN	Tray 2 pickup assembly	Table 8-7 on page 255
RM1-1482-000CN	Pick-up roller gear assembly	Table 8-4 on page 245
RM1-1484-000CN	Tray 1 pick-up shaft assembly	Table 8-6 on page 251
RM1-1485-000CN	Roller stay assembly	Table 8-4 on page 245
RM1-1490-000CN	Multi-purpose tray assembly	Table 8-2 on page 239
RM1-1500-000CN	Fixing drive side plate assembly	Table 8-5 on page 249
RM1-1502-000CN	Registration assembly	Table 8-6 on page 252
RM1-1503-000CN	Cartridge door assembly	Table 8-2 on page 239
RM1-1504-000CN	Feed guide assembly	Table 8-5 on page 249
RM1-1505-000CN	Power supply	Table 8-5 on page 249
RM1-1506-000CN	Position guide assembly	Table 8-5 on page 249
RM1-1507-000CN	Feed guide assembly, lower	Table 8-4 on page 245
RM1-1508-000CN	Transfer roller assembly	Table 8-6 on page 251
RM1-1514-000CN	Top cover assembly	Table 8-2 on page 239
RM1-1516-000CN	ECU, 110-127 V	Table 8-3 on page 242
RM1-1517-000CN	Rear cover assembly	Table 8-2 on page 239
RM1-1519-000CN	Control panel	Table 8-2 on page 239
RM1-1521-000CN	Laser/scanner assembly	Table 8-3 on page 241
RM1-1522-000CN	Drive release assembly	Table 8-5 on page 249
RM1-1523-000CN	Tray 1 cover assembly	Table 8-2 on page 239
RM1-1524-000CN	ECU, 220-240 V	Table 8-3 on page 242
RM1-1531-000CN	Fuser, 220-240 V	Table 8-4 on page 246
RU5-0366-000CN	Gear, 30t	Table 8-6 on page 251
RU5-0375-000CN	Gear, 15t	Table 8-4 on page 245
RU5-0377-000CN	Gear, 28t	Table 8-5 on page 249
RU5-0378-000CN	Gear, 20t	Table 8-5 on page 249

Table 8-9. Numerical parts list (continued)

Part number	Description	Table and page
RU5-0379-000CN	Gear, 19t	Table 8-5 on page 249
RU5-0389-000CN	Gear, 201t	Table 8-5 on page 249
RU5-0400-000CN	Gear, 12t	Table 8-6 on page 251
RU5-0409-000CN	Gear, 14t	Table 8-6 on page 251
RU5-2385-000CN	Spring, compression	Table 8-6 on page 251
RU5-2386-000CN	Spring, torsion	Table 8-6 on page 251
RU5-2388-000CN	Spring, tension	Table 8-2 on page 239
RU5-2401-000CN	Spring, compression	Table 8-5 on page 249
RU5-2403-000CN	Spring, tension	Table 8-3 on page 241
RU5-2404-000CN	Spring, compression	Table 8-3 on page 241
RU5-2405-000CN	Spring, compression	Table 8-3 on page 242
RU5-2406-000CN	Spring, tension	Table 8-2 on page 239
RU5-2407-000CN	Spring, tension	Table 8-3 on page 241
RU5-2408-000CN	Spring, compression	Table 8-5 on page 249
RU5-2410-000CN	Spring, torsion	Table 8-3 on page 241
VS1-7177-003CN	Connector, snap tight, bk	Table 8-3 on page 241
VS1-7177-004CN	Connector, snap tight, bk	Table 8-3 on page 242
VS1-7257-007CN	Connector, drawer	Table 8-6 on page 251
WG8-5624-000CN	Ic, photo interrupter	Table 8-4 on page 245
WT2-5056-000CN	Clip, cord	Table 8-5 on page 249
WT2-5694-000CN	Clip clamp, wire	Table 8-3 on page 242
WT2-5812-000CN	Clip, cable	Table 8-3 on page 241
XA9-1500-000CN	Screw, S, M3x8	Table 8-2 on page 239
XA9-1500-000CN	Screw, S, M3x8	Table 8-3 on page 241
XA9-1500-000CN	Screw, RS, M3x8	Table 8-4 on page 245
XA9-1500-000CN	Screw, S, M3x8	Table 8-5 on page 249
XA9-1500-000CN	Screw, RS, M3x8	Table 8-6 on page 251
XA9-1503-000CN	Screw, tapping, M3x6	Table 8-2 on page 239
XA9-1503-000CN	Screw, tapping, M3x6	Table 8-5 on page 249
XB2-7300-605CN	Screw, w/washer, M3x6	Table 8-3 on page 241
XB2-7300-605CN	Screw, w/washer, M3x6	Table 8-4 on page 245
XB2-7300-605CN	Screw, w/washer, M3x6	Table 8-5 on page 249
XB4-5300-805CN	Screw, p, M3x8	Table 8-6 on page 251

Table 8-9. Numerical parts list (continued)

Part number	Description	Table and page
XB4-7401-005CN	Screw, tapping, truss head, M4x10	Table 8-2 on page 239
XB4-7401-005CN	Screw,tapping,truss head,m4x10	Table 8-4 on page 245
XB4-7401-005CN	Screw, tapping, truss head, M4x10	Table 8-5 on page 249
XB4-7401-005CN	Screw, tapping, truss head, M4x10	Table 8-6 on page 251

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Q5956-90932